



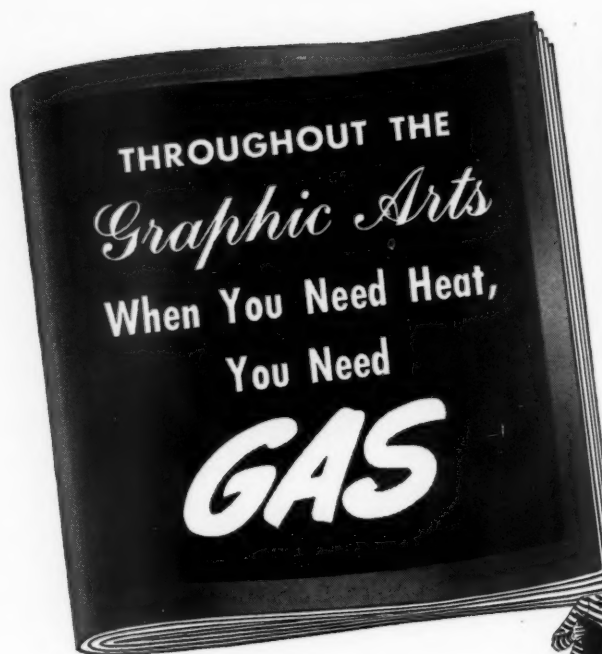
AMERICAN GAS

Association

MONTHLY

JULY-AUGUST 1948

• VOL. 30 • NO. 7 AND 8



Throughout the fields of printing and publishing, and in all the related phases of the graphic arts, GAS and modern Gas Equipment perform the myriad heating tasks so vital to datelines and deadlines.

Behind the scenes in newspaper plants, magazine printing establishments, commercial and specialty houses, book binderies, the productive flames of GAS serve efficiently and economically in heating operations such as:

- Ink Drying
- Wax Melting
- Stereotype Production
- Paper Curing
- Embossing
- Type Metal Melting

But these are not the only possible GAS applications in the graphic arts industry. In fact, GAS is the ideal fuel for all types of heating operations because modern Gas Equipment is so flexible, time-saving and labor-saving.

In your modernization planning there's a definite place for GAS and modern Gas Equipment—and that's where your local Gas Company Representative can be very helpful.

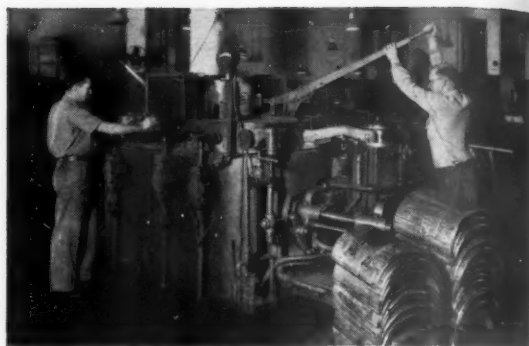
AMERICAN GAS ASSOCIATION

420 LEXINGTON AVENUE, NEW YORK 17, N. Y.

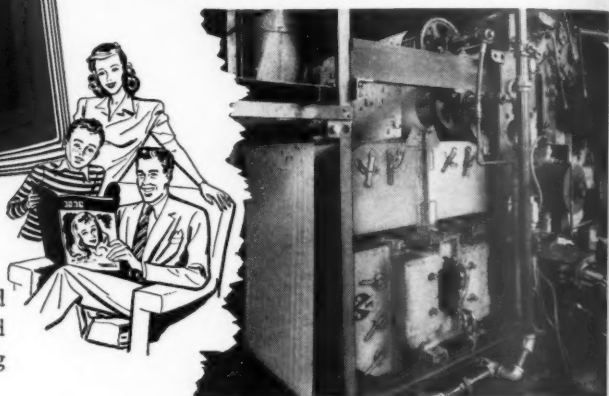
MORE AND MORE...

THE TREND IS TO GAS

FOR ALL INDUSTRIAL HEATING



In the modern plant of a great southern newspaper this stereotype machine is always ready for action because it is Gas-fired and automatically controlled.



Mounted right in the press, this Gas-fired ink-drying unit has increased production and increased plate life in a specialty lithographing plant.



Fast drying at high temperatures is essential to the production-line processing of embossed printing—Gas-fired equipment provides the necessary heat for polymerization.



One of the largest manufacturers of closures uses this specially-designed tunnel dryer for drying of lithography on tin-plate.



ADVERTISING is the subject of the lead article in this issue. Other feature stories place heavy emphasis upon research and promotion. Taken together, these three—promotion, advertising and research—constitute the gas industry's energetic all-star team which has just celebrated three and a half years of concerted effort. To commemorate the occasion, a special midyear PAR report has been distributed to member companies with a detailed account of the strides the program has made under its chairman, Mr. Hornby. Numerous other evidences of PAR work and accomplishment can be found throughout the pages of the MONTHLY. . . . Concurrently, an attractive illustrated booklet has been released outlining the Association's research progress and plans. A preface to this latter publication singles out the vital role which management has played in successfully organizing industrial research. With more than 1,500 members of the industry currently engaged in A. G. A. committee work, management at this very minute is canvassing its ranks for "seasoned" men and "recruits" to prepare the way for further advances under the current promotion, advertising and research program. More and more, progress is becoming the responsibility not only of the incoming officers, directors and the staff of the Association, but of everyone in the gas industry.

JAMES M. BEALL
EDITOR
JAC A. CUSHMAN
MANAGING EDITOR

EDITORIAL OFFICES:
AMERICAN GAS ASSOCIATION
420 LEXINGTON AVE., NEW YORK 17, N.Y.



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Keys to Effective Advertising

By JOHN J. QUINN*

*Chairman, American Gas Association
National Advertising Committee*

TODAY the advertising manager is recognized as having an important place in all phases of business management concerned with the dissemination of information to those with whom he and his company are associated, whether these be customers or potential users of our services and products, employees, investors, and other Very Important Persons, whether these V. I. P.'s be in private or political life, or just the garden variety of fellow citizen through whose necessity and by whose pleasure it has been possible to build and maintain our great public service enterprises.

The utility advertising manager must indeed be a person of many interests. If he is to meet his proper and responsible obligations he should be inquisitive, analytical, creative, and considerate. The last may be the most valuable of all these desirable qualities. Obvious as it may appear, the advertising manager must first think of the attitude and feelings of those whose interest must be cultivated. Along with these qualities he must also possess executive aptitude if he is to be most valuable to his company and its sales executive.

I am impressed and constantly reminded of how capably the broad and diverse fields of interests are being handled by those in the advertising craft who are charged with the responsibility of making clear and understandable the virtues and blessings of utility services as well as the causes underlying shortages and the inevitable restrictions which follow when shortages exist. If these latter situations are improperly handled, through a lack of information or through allowing

misinformation to spread, it is obvious that resultant confusion and criticism can do great harm to the respect and confidence which has come from years of valuable service.

Today we have certain problems of limited supply. Shortages in electricity due to drought condition, and in gas because of insufficient steel, create problems calling for effective cause-and-effect presentation if our position is to be made clear and our utility services are to avoid unjust criticism. These and like problems may have to be faced for some time as indicated by the current steel pipe shortage which shows little improvement.

Maximum advertising effectiveness is particularly important these days when many utilities are experiencing substantial increases in sales and gross revenues which are frequently offset by even greater increases in expenses, resulting in an insufficient net return on investment, or even in some instances in a net operating loss. Because the nature of these increased expenses such as increased wages and other benefits, cost of materials and taxes, are beyond management control, the only recourse in such situations lies in increased rates for service. To present this situation properly to employees, public investors, and V. I. P.'s creates both a problem and an opportunity for the advertising manager.

Never before has advertising had so many varied, effective, and novel media available with which to tell its story. The printed and spoken word and illustration may be used in every conceivable manner including movies, with and without color and sound, radio, and now or soon, television.

The utility sales executive must look with confidence to the advertising manager for information and advice upon which to base decisions—what media to use, what manner and to what extent it should be used, the degree of observation, readership or listenership likely to be secured, and the costs and expected returns. In addition, the advertising manager must bring to the sales executive a knowledge of treatment which experience and judgment dictates as most likely to produce the best result. This is obviously a large order and writing the prescription for filling this order is by far the easier part.

In many utilities advertising is a function of the sales

*Vice-president, Boston Consolidated Gas Co., Boston, Massachusetts.
Presented at annual meeting, Public Utilities Advertising Association,
Cleveland, Ohio, May 28, 1948.

◀ 12-inch valve at Blythe compressor station on Texas-California Biggest Inch line provides a seat for Southern Counties Gas Company's general plant foreman, Glen V. Vail. Picture by Mel Jones, Southern California Gas Co., Los Angeles



John J. Quinn explaining how to tie in with Gas Has Got It advertising on the local level

department, and in such situations the advertising manager is or certainly should be the strong right-bower of the sales executive. In other situations, both sales and advertising enjoy equal executive status. In either situation, it seems only fitting to observe that the mutuality of interests of both advertising and selling dictate a need for the closest working arrangements between those responsible for these two important functions.

It has been said that selling without advertising is like winking at a pretty girl in the dark—nobody knows what you are doing. If our selling efforts are to be productive, they cannot be kept a dark secret but must be brightened by the light of effective advertising.

Not every advertising manager can be expected to possess all the knowledge, technique, experience, initiative, judgment and understanding of human nature needed if the responsibilities assigned to the advertising manager are to be carried out in the most capable manner. However, men and women who strive to excel in filling the responsibilities of such positions should consciously set their sights to attain these qualities in a high degree.

Possession of initiative rates very high in my appraisal of an effective advertising manager. With it the advertising

manager will engender enthusiasm. Without this quality, the going is bound to be harder for the individual and his influence as advertising manager will be lessened. With initiative, the advertising manager is constantly exploring new channels for usefulness from source material both within and without the company with which he is affiliated.

No activity of the company should ever be closed to the advertising manager. He or she should be advised on all company management policies, plans, procedures, and results. His opinion and advice should be solicited and thoughtfully considered before policy changes are decided upon. If he has the ability to feel the public pulse, he can make a valuable contribution to management when policy changes affecting public interest have to be determined.

So far as is practical, information should come to him first hand from responsible management executives. Department and division heads of the company, supervisors and foremen should be known to him in a friendly intimate way. Plants, stations, and offices, as well as merchandising outlets of the utility and its appliance dealers should be visited with some degree of regularity, even if this regularity cannot be frequent. Only by direct observation can the advertising manager become in fact a part of the company whose policies, practices, and problems he must present to the public and all others concerned, in clear, concise, understandable terms and in a sincere and sympathetic manner. This combination of inner circle participation and direct outside contact will reflect credit on the advertising manager and make his value to his company and the community unquestioned.

Determination and Time

In writing this prescription it is realized that all of the qualities specified, however desirable, will not always be found complete and entire in each individual. For example, technical training or experience may be lacking to certain degrees. A determination to improve can take care of the first of such deficiencies. Time should take care of the latter.

Today we have great national programs of advertising and promotion, with plans and materials available which

deserve the most careful attention as to their local use. Both the more skilled and experienced, as well as those less versed in the setting up of advertising plans and their execution, should thoughtfully review all such programs and materials and use same wherever possible.

An outstanding example of this kind of facility is the American Gas Association's Gas Has Got It program on automatic gas ranges which was launched last fall. Here is a national advertising program, complete with extensive local tie-in themes and elements, the industry-wide use of which resulted in pyramiding \$600,000 of Association advertising funds to a total of more than \$4 million in the over-all Association, manufacturer, utility, and dealer combined programs which are concentrated on telling the story of automatic gas cooking.

Every useful advertising and publicity element was included in this program, each so planned and executed as to be of maximum usefulness to individual utility companies, manufacturers, and appliance dealers. Not to utilize such a plan to the fullest at the local level would be missing a great opportunity to obtain added impact and make local advertising dollars produce maximum results.

The sales executive looks to the advertising manager to study such plans as the Gas Has Got It program and the New Freedom Gas Kitchen program which also was initiated by A. G. A. as part of its national advertising. Recommendations for the use of such programs and materials should come from the advertising manager. Where these national programs have wholehearted industry support, as in the case of the Gas Has Got It program, the resultant benefit to local participants is in direct proportion to the extent to which they actively participate.

It is important for the utility advertising manager to tie in local effort with national programs so that the advertising money spent by industry associations and appliance manufacturers will be utilized at all levels to the best advantage. This responsibility and interest should be fully exercised whether or not he (or she) is a member of the industry committees which assist in developing and fostering these national industry programs.

What I have tried to set forth has recently been (Continued on page 54)

Helen Kirtland (standing), home service director, The Ohio Fuel Gas Co., instructing "Betty Newtons" in kitchen planning



Hats Off to Home Service

Ohio Fuel Gas Company's Workshop presents a clear picture of the many skills acquired by modern home service departments

WITH the theme "Hats Off to Home Service" and keynoted by Jessie McQueen, home service counselor, American Gas Association, a busy four-day Workshop of The Ohio Fuel Gas Company's 28 "Betty Newtons" was held in Columbus, Ohio, June 2-5.

At the conclusion of the Workshop, everyone joined in "hats off" to Helen Kirtland, the company's home service director, for a new high in training and refresher programs.

When experts in their fields readily accepted Miss Kirtland's invitations to take part, the Workshop was on its way to success. Weeks of planning, with every detail considered and every "Betty Newton" consulted, wrapped up that

success, securely and attractively.

An impressive list of speakers and discussion leaders testifies to the merit of the program. Included were Miss McQueen, Elizabeth J. Lynahan, home service director, The Peoples Gas Light & Coke Co., Chicago, and chairman, A. G. A. Home Service Committee; Mildred R. Clark, home service supervisor, Oklahoma Natural Gas Co., Tulsa, Okla.; Dr. L. C. Staats, Ohio University; Mrs. Nadyne Meldahl and Sara Glenn, Servel, Inc.; K. V. Ludlow, general sales manager, The Cleveland Heater Co.; Celia Bush, director of home service, Estate Heatrola Division of Noma Elec- (Continued on page 58)



Mildred Clark, Tulsa, demonstrating dishwasher



Grouped for dinner at Columbus Country Club: (l. to r.) W. N. Grinstead, vice-president and treasurer, and F. T. Rainey, general sales manager, The Ohio Fuel Gas Co.; Nadyne Meldahl, Roderic Peters, Sara Glenn, and Curby Jamerson, all of Servel

Dr. Gladys Branegan, Ohio State; C. I. Weaver, president, The Ohio Fuel Gas Co.; Elizabeth Lynahan, chairman, A.G.A. Home Service Committee; Daisy Davis, Ohio State; J. E. Humphreys, The Ohio Fuel Gas Co.; Jessie McQueen, A.G.A.

FOR PRESIDENT



R. W. Hendee

FOR DIRECTOR



F. M. Banks



A. M. Beebee



N. B. Bertollette

FOR VICE-PRESIDENT



Hugh H. Cuthrell



D. A. Hulcy

FOR TREASURER



Edward F. Barrett

FOR CHAIRMAN



L. E. Reynolds
Accounting Section



B. T. Franck
Industrial and
Commercial Gas
Section



W. F. McConner
Manufacturers Section



W. M. Jacobs
Residential Gas
Section



W. R. Fraser
Technical Section



Arthur F. M.
Laboratory
Managing Com

Nominating Committee

IN accordance with the provisions of Section 2, Article II of the Association's by-laws, the General Nominating Committee has submitted its nominations for officers and directors for the next fiscal year. In accordance with Section 3, Article II, any 50 member companies may make additional nominations on or before August 7.

Announcement is hereby made to the membership of the report of the General Nominating Committee which will be presented at the annual convention in Atlantic City the week of October 4:

For President—R. W. Hendee, president, Colorado Interstate Gas Co., Colorado Springs, Colo.

For First Vice-President—Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Co., Brooklyn, N. Y.

For Second Vice-President—D. A. Hulcy, president, Lone Star Gas Co., Dallas, Texas

For Treasurer—Edward F. Barrett, presi-

dent, Long Island Lighting Co., Mineola, N. Y.

For Director—two-year terms: F. M. Banks,* vice-president and assistant general manager, Southern California Gas Co., Los Angeles, Calif.

A. M. Beebee,* president, Rochester Gas & Electric Corp., Rochester

N. B. Bertollette, president, The Hartford Gas Co., Hartford, Conn.

Henry Fink, president, Michigan Consolidated Gas Co., Detroit

Oliver S. Hagerman,* president, Atlantic Seaboard Corp., Charleston

John L. Haley, president, Central New York Power Corp., Syracuse

D. P. Hartson,* vice-president and general manager, Equitable Gas Co., Pittsburgh, Pa.

George F. Mitchell,* president, The Peoples Gas Light & Coke Co., Chicago, Ill.

* Renominated.

Reports for 1948-1949

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F. M.
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A. B. Ritzenthaler, vice-president, The Tappan Stove Co., Mansfield, Ohio
Frank C. Smith,* president, Houston Natural Gas Corp., Houston, Texas
A. H. Stack,* president, The Tampa Gas Co., Tampa, Fla.
Allyn C. Taylor, president, Consumers Gas Co., Reading, Pa.
John Van Norden, secretary, American Meter Co., New York, N. Y.

Respectfully submitted,
A. V. S. Lindsley, chairman
Joseph Bowes
William G. B. Euler
S. H. Hobson
Dean H. Mitchell
N. T. Sellman.

* Renominated.

The following have been nominated by Section Nominating Committees to serve as Section officers:

Accounting Section:

For Chairman—L. E. Reynolds, comptroller and assistant secretary, The Connecticut Light & Power Co., Hartford, Conn.

For Vice-Chairman—John H. W. Roper, supervisor of customer accounts, Washington Gas Light Co., Washington, D. C.

Industrial and Commercial Gas Section:

For Chairman—B. T. Franck, vice-president, Milwaukee Gas Light Co., Milwaukee, Wisc.

For Vice-Chairman—D. W. Reeves, general sales manager, Oklahoma Natural Gas Co., Tulsa, Okla.

(Continued on page 50)

FOR VICE-CHAIRMAN



John H. W. Roper
Accounting Section



D. W. Reeves
Industrial and
Commercial Gas
Section



H. Preston Marshouse
Residential Gas
Section



Ernest G. Campbell
Technical Section



C. E. Bennett
Laboratories
Managing Committee



Oliver S. Hagerman



John L. Haley



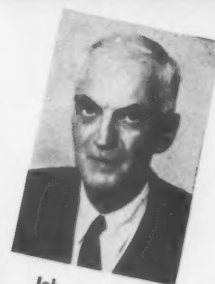
D. P. Hartson



George F. Mitchell



Robert W. Otto



John C. Parker



A. B. Ritzenthaler



Frank C. Smith



A. H. Stack



Allyn C. Taylor



John Van Norden



Arthur F. Bennett
Laboratories
Managing Committee

Atlantic City Again to be Host to A. G. A. Members



MORE than 10,000 people are expected to attend the thirtieth annual convention of the American Gas Association and the exhibition of the Gas Appliance Manufacturers Association in Atlantic City, N. J., October 4-8. Factors influencing this anticipated record attendance are a strong business program, the largest and most spectacular exhibition of new and improved gas appliances and equipment, and greater participation of dealers and wholesalers from all parts of the country.

Under the leadership of a convention committee headed by past A. G. A. President T. J. Strickler, The Gas Service Co., Kansas City, Mo., business sessions have been planned to include a meeting of the Natural Gas Department on Monday morning, October 4, a meeting of the Manufactured Gas Department that afternoon, and general sessions on the mornings of October 5, 6 and 7. Sectional meetings will be held the afternoons of the latter three days and the popular Home Service Breakfast will take place Wednesday, October 7.

Exhibition Open To Dealers

A major part of the program for October 7 and 8 will be directed toward dealers, and a concerted effort is being made to extend the benefits of the appliance and equipment exhibition to a large segment of the gas appliance field. This is the first time the exhibition has been open to wholesalers and dealers and more than 25,000 of them are receiving special invitations to attend. A merchandising program for dealers is being arranged jointly by A. G. A. and G.A.M.A. for Thursday, October 7. Liquefied petroleum dealers are also being invited to the exhibition and will hold a meeting on Friday, October 8 at

which time G.A.M.A. will sponsor a merchandising clinic program.

As of June 15, approximately 3,500 A. G. A. members had secured hotel reservations for the convention and all those planning to attend are urged to make their reservations immediately. Additional copies of the application blank for hotel reservations may be obtained from the Association in New York and should be filed promptly with the A. G. A. Housing Bureau, 16 Central Pier, Atlantic City, N. J.

Section Headquarters Designated

In designating choice of hotels, attention is directed to the fact that meetings and headquarters of the Accounting Section will be at Haddon Hall; Industrial and Commercial and Residential Gas Sections at the Ritz-Carlton Hotel, and Technical Section at the Ambassador Hotel.

Many vital industry-wide problems will be discussed at the general sessions by authoritative gas industry and outside speakers. Among the topics on the tentative program are such important subjects as regulation, labor relations, salesmanship, promotion, advertising and research activities, and an analysis of the commercial gas load.

The two major divisions of the Association, the Natural and Manufactured Gas Departments, will divide the opening day's program, on Monday, October 4. In the morning, the Natural Gas Department program committee under the chairmanship of Gardiner Symonds, president, Tennessee Gas Transmission Corp., Houston, Texas, has arranged for addresses in the broad fields of economics, industrial relations and regulation affecting this rapidly expanding branch of the gas industry.

In the afternoon, the Manufactured Gas Department will sponsor a diversified program of special interest to this group. Available supplies of raw materials and the economics of the fuel industry generally are expected to receive full attention at this meeting. Tentatively considered is a summarized version of the symposium on fuels which proved so successful under the chairmanship of J. V. Postles, The Philadelphia Gas Works Co., chairman, A. G. A. Committee on Fuels, at the recent Production and Chemical Committee Conference. An up-to-date review of the Association's general research projects will also be a highlight.

Sectional programs will delve into every phase of the gas business and provide much valuable information on new developments. The Accounting Section plans to hold four separate meetings Tuesday afternoon at Haddon Hall, namely, Customer Activities, General Accounting and Property Records, Taxation, and Materials and Supplies. Among the topics on the tentative program are underground storage, departmental coordination of property records, gas purchasing accounting, construction, fuel adjustments in rates, pet collection procedures, standardization of company forms, residential deposits, and customer interview techniques.

Full Program Planned

The accounting program will continue Wednesday afternoon with a luncheon followed by a full afternoon general session. At this session such topics as "Better Accounting through Better Systems Planning," "How to Tell Our Story to the Employee," "Accounting Develop- (Continued on page 50)

Catalytic Reforming

Tests with first full-scale plant in gas company use show that process is ideally suited for gas production to meet peak loads

By S. W. HORSFIELD

Gas Production Manager
Long Island Lighting Co.,
Mineola, New York

OPERATION of a liquefied petroleum catalytic cracking plant installed at Riverhead in the eastern section of the Long Island Lighting Company's territory has proven a successful means of not only providing additional gas production, but also of relieving the gas transmission system during peak load periods.

This catalytic cracking process is not new to industry but has been used for several years for the production of gas for use in furnace atmospheres and for glass manufacturing heating processes requiring close control of the chemical constituents of the gas. The Riverhead plant is, however, the first full-scale plant to be used by a gas company.

The process is basically that of reforming hydrocarbon gases at high temperatures in contact with a catalyst. The resulting gas is of relatively low specific gravity and heating value, and is composed mainly of hydrogen and carbon monoxide. The reformed gas thus produced may be cold-enriched with liquefied petroleum gas vapor to the desired heating value. The process may be controlled to produce a gas within wide limits of specific gravity and heating value, making possible the production of a gas that is almost identical, in physical and combustion characteristics, to the base gas normally supplied. It is therefore, a complete substitute gas, and may entirely replace the normal supply from the base load plant. This is a distinct advantage over liquefied petroleum-air gas mixtures which are widely used as a supplement gas for peak load purposes.

It is well recognized that the high specific gravity of liquefied petroleum-air gas imposes strict limitations in its use, depending chiefly on the chemical com-

position and specific gravity of the base gas. The Long Island Lighting Company's experience using butane-air as a supplement gas indicates that, for that system, the limit of interchangeability is reached when butane-air gas added is approximately 22 percent of the base gas.

Producing a 100 percent substitute gas, the catalytic cracking plant is ideally suited to serve areas at locations remote from the base load plant, consequently relieving the transmission facilities serving the area and eliminating the neces-

sary, butane, or both, for gas production, and light oil for heating the cracking furnaces. Facilities for both light and heavy oil are provided for fuel supply to the boiler.

The cracking plant consists of three Surface Combustion Corporation catalytic cracking units, two of which were originally designed for the Washington Gas Light Company for reforming natural gas at about 25 p.s.i., and were also to be heated with natural gas. However, because of changeover to 100 percent natural gas, the units were not installed by that company. After we had acquired the units and had them modified to permit firing with light fuel oil, and with the addition of a third similar unit, they were installed at Riverhead.

Each consists of a vertical rectangular furnace, approximately 11 feet square

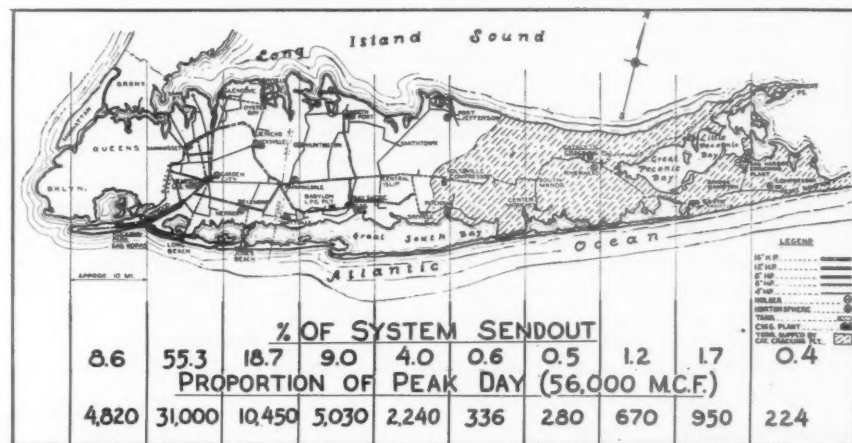


Figure 1. Map of Long Island Lighting Company system showing average distribution of gas sendout. Plant capacity (M.c.f. per day): Rockaway Park—20,000; Hempstead—11,000; Bay Shore—17,000

sity of substantial investment for additional transmission capacity. Figure 1 is a general map of the Long Island Lighting System showing the location and capacities of the gas production plants, the principal gas transmission mains, and the approximate distribution of the gas load throughout the territory on a percentage of system load and a peak-day basis.

Our gas transmission system is essentially high pressure. Pressures up to 75 p.s.i. are presently used and up to 100 p.s.i. are being planned for some locations in the near future.

The equipment installed at Riverhead is for operation with a feed-stock of pro-

pane, butane, or both, for gas production, and light oil for heating the cracking furnaces. Facilities for both light and heavy oil are provided for fuel supply to the boiler. The cracking plant consists of three Surface Combustion Corporation catalytic cracking units, two of which were originally designed for the Washington Gas Light Company for reforming natural gas at about 25 p.s.i., and were also to be heated with natural gas. However, because of changeover to 100 percent natural gas, the units were not installed by that company. After we had acquired the units and had them modified to permit firing with light fuel oil, and with the addition of a third similar unit, they were installed at Riverhead. Each consists of a vertical rectangular furnace, approximately 11 feet square

Each furnace is heated by 15 oil burn-

Excerpts from talk presented at A. G. A. Joint Production and Chemical Committee Conference, Asbury Park, N. J., May 24-26, 1948.

ers installed so as to provide uniform heating. The catalyst (nickel-oxide) is impregnated in a support consisting of $\frac{3}{4}$ inch refractory cubes. These cubes occupy approximately 19 feet of tube space in the hot zone of the furnace; above and below this zone the tubes are filled with small pieces of alundum. The tubes are manifolded at the top and bottom and are provided with valves to permit any tube to be isolated should it fail or if necessary to burn out carbon deposits. Air supply lines are provided at the bottom, and vent lines at the top of each tube to permit the catalyst to be revived.

Each tube has an orifice connected to a mercury manometer with electrical probes so that the operator can distribute the feed properly, and also to sound an alarm automatically in the event of tube failure.

A flow diagram of the process is shown in Figure 4. Four operations are necessary: mixing the L.P.G. vapor, air and steam in the correct proportions; cracking this mixture in the cracking tubes; cooling the resulting reformed gas; enriching this gas to produce a final gas of the desired heating value.

The cracking furnace temperatures are automatically maintained within close limits at a temperature of 1800° F by Leeds-Northrup pyrometer-potentiometer controllers which regulate the oil pressure of the furnace burners.

The main control of the plant is the

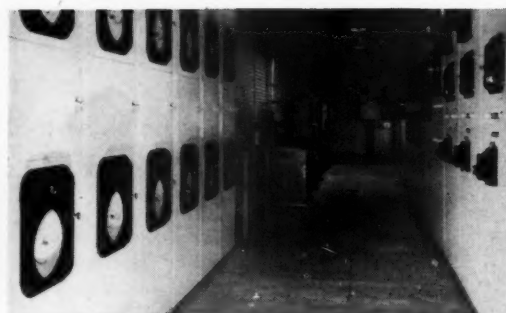
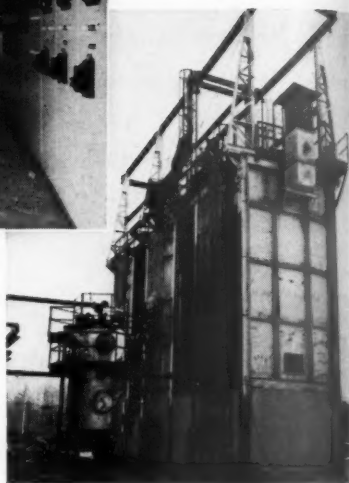


Figure 2. (above). Control room with flow meters at left and furnace temperature control instruments at right. Figure 3 (right). Washer cooler and cracking furnaces at new Riverhead plant



flow of process vapor which is regulated by means of a remotely controlled valve operated by air pressure from the main control panel. The proportions of process air and steam required are automatically maintained by Askania controlled piston-operated valves. Vapor and air are first mixed and heated by passing through a steam heated tube-type pre-heater to 350° F before the process steam is added. The mixture of vapor, air and steam is then fed to the manifold at the bottom of the furnace and distributed to the cracking tubes.

Hydrocarbons in the feed mixture reform in passing through the hot catalyst in the tubes; also, dissociation of steam by the water gas reactions occurs during this passage. The resulting reformed gas is cooled in primary coolers at the top

of each tube to approximately 350° F and delivered through a manifold to the washer-cooler where it is further cooled to 70° F. The reformed gas is then enriched with L.P.G. vapor to produce a final gas of 540 B.t.u. This is accomplished by means of Cutler-Hammer calorimixer and Askania proportioning devices.

Passing through a mixing chamber, the final gas is pumped by the gas compressor and delivered to the gas transmission system at pressures up to 65 p.s.i.

The type of gas produced by the

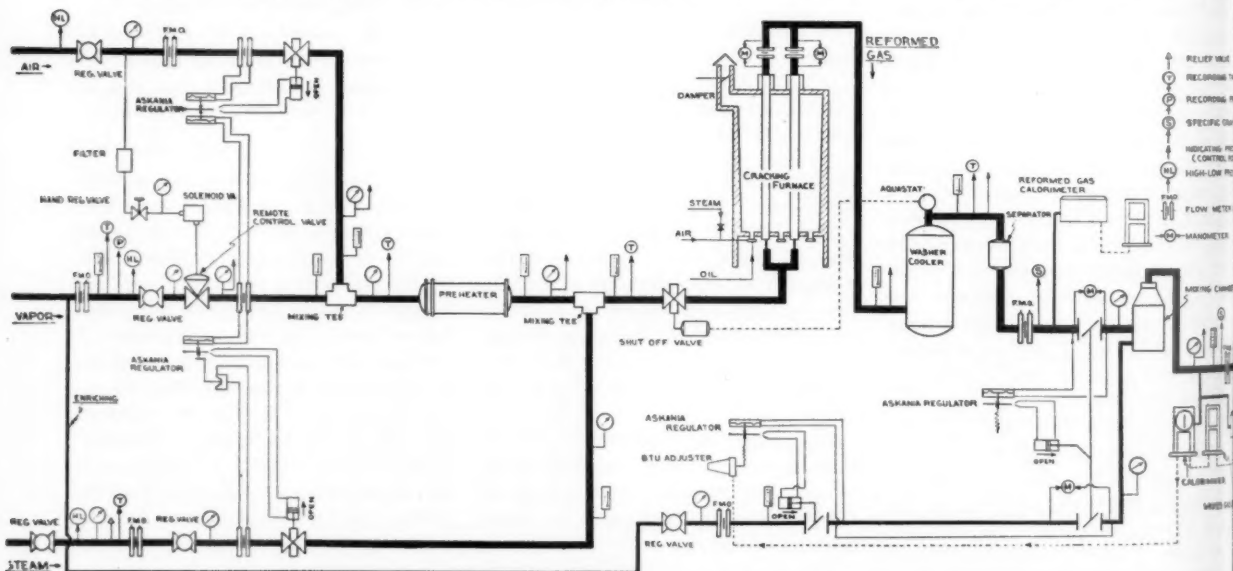


Figure 4. Flow diagram of the liquefied petroleum catalytic reforming process for gas production

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cracking process depends on the proportions of air and steam in the feed to the tubes and is usually referred to as "air gas" or "steam-gas" according to whether air or steam predominates in the mixture. By controlling these proportions, reformed gas varying from 180 to 350 B.t.u. and from .52 to .65 specific gravity may be produced; the higher B.t.u. and lower gravity being those obtained with steam-gas.

Gas output is considerably greater and less furnace heat is required for air-gas than for steam-gas operation. The variation in the type of gas produced, made possible merely by changing the air and steam proportions, makes the process extremely flexible with a final gas that closely matches almost any type of manufactured gas normally supplied by utility companies.

Completely automatic features of the plant make possible its operation with only two men per shift, one of which is a technically trained engineer. It is controlled from a central control room which houses all instruments, meters, gauges and controls.

Automatic shutdown equipment is provided which not only shuts down the plant in the event of a failure of supply of any feed ingredient, but sounds an alarm and indicates by means of lights the cause of the shutdown. The alarm also sounds in the event furnace temperatures go beyond the upper or lower limits set on the control pyrometers; lights indicate which furnace is affected and whether temperature is high or low.

The plant was originally designed for a production capacity of 25 M.c.f. per hour per unit. However, outputs over three times this amount were found possible if sufficient heat input to the furnace was provided. This was indicated by the pilot plant tests made at Chester by the Institute of Gas Technology under the sponsorship of the American Gas Association.

Results obtained during four different test runs are shown in Figure 5. Run "A" was operation with the original burners, and runs "B," "C" and "D" with the high capacity burners.

All these test runs were made with one unit only in operation. A, B, and C runs were made producing a final "matched gas" of 540 B.t.u. and .68 to .70 specific gravity. Run D was made producing a final 100 percent inter-

changeable gas of 540 B.t.u. and .80 specific gravity. Runs A, B, and C may be considered to be steam-gas, and run D air-gas operation. The ultimate limit of production capacity was not reached in these tests. It was found necessary to limit output in runs C and D because of excessive gas temperature which reached 600° F at the outlet of the primary coolers. Minor changes in these coolers are being made to correct this condition and

it is expected this will permit capacities to be increased 10-15 percent.

It would appear that ultimate capacity will depend on the rate of carbon deposition on the catalyst, and the consequent curtailment in production when burning out these carbon formations. It is believed that very high production rates may be possible for short periods. This is a distinct advantage for peak load supply (Continued on page 39)

FIGURE 5. RIVERHEAD OPERATION DATA AND RESULTS

Final Gas	A	B	C	D
Total Output/unit MCF/hr.	21.00	50.00	64.00	72.30
Heating Value Btu. (Calor)	540	540	539	540
Specific Gravity (Ranarex)	0.68	0.70	0.70	0.80
Analysis (Calc.) CO ₂	1.0	7.1	3.9	1.7
% Vol. CO	22.5	13.5	18.1	19.5
H ₂	38.9	41.5	39.8	28.6
CH ₄	0.9	1.6	2.0	0.8
C ₂ H ₆	14.3	14.0	14.1	15.3
N ₂	22.4	22.3	22.1	34.1
<i>Reformed Gas</i>				
Gas Produced MCF/hr.	18.00	43.00	55.00	61.20
% of Final Gas	85.7	86.0	85.9	84.7
Heating Value Btu. (Calor)	237	220	230	190
Specific Gravity (Ranarex)	0.53	0.55	0.55	0.65
Analysis CO ₂	1.1	8.3	4.6	2.0
% Vol. CO	26.2	15.7	21.1	23.0
H ₂	45.5	48.2	46.3	33.8
CH ₄	1.0	1.9	2.3	1.0
N ₂	26.2	25.9	25.7	40.2
Process Vapor MCF/hr.	1.67	2.93	4.80	4.95
Process Air MCF/hr.	5.58	11.54	17.00	29.45
Process Steam lb./hr.	200	930	730	215
Steam lb./MCF Ref. Gas	11.1	21.6	13.2	3.5
Air Cu.Ft./Cu.Ft. Vapor	3.34	3.94	3.54	5.95
Ref. Gas MCF/Cu.Ft. Cat. (Cat:27.4 c.f.)	0.66	1.57	2.00	2.23
<i>Furnace Heating</i>				
Oil Gallons/hr.	29.8	42.5	36.9	31.7
Air Cu.Ft./hr. (Est.)	4200	6000	5200	4500
Ave. Temp. Top °F.	1750	1765	1745	1770
Ave. Temp. Bottom °F.	1825	1870	1875	1830
Ave. Temp. (Control) Center °F.	1775	1800	1800	1800
<i>Efficiency</i>				
Tube Efficiency (Ref. Gas) %	109.0	137.3	112.5	99.8
Overall Eff. (Based on 135,000 Btu./gal. Fuel Oil) %	65.9	74.5	75.2	72.8
<i>Enriching</i>				
Used MCF/hr.	3.00	7.00	9.00	11.10
% of Final Gas	14.3	14.0	14.1	15.3
Btu./Cu.Ft.	2347	2347	2347	2347
Specific Gravity	1.52	1.52	1.52	1.52
<i>Materials Used/MCF of Final Gas</i>				
Propane-Process-gallons	2.18	1.61	2.05	1.87
Propane-Enriching-gallons	3.91	3.84	3.85	4.21
Propane-Total-gallons	6.09	5.46	5.90	6.08
Furnace Heating Oil gallons	1.42	0.85	0.58	0.44
Steam Process lbs.	9.53	18.60	11.40	2.97
Steam Vaporizing (Est.) lbs.	4.20	3.74	4.00	4.20
Steam Preheater (Est.) lbs.	3.10	2.67	3.20	4.50
Steam Total lbs.	16.83	25.01	18.60	11.67
Air-Process Cu.Ft.	265	231	266	407
Air Burners (Est.) Cu.Ft.	(10 lbs. Stm.) 120	120	82	62
Air Total	265	351	348	469

Teamwork Needed in Oil Shortage

**Cooperation between industry
and consumer will maintain a
short-range balance until
new supplies are available**

By D. L. BARRETT

*Manager, Bulk Products Division
Esso Standard Oil Co.*

PHENOMENAL increase in the demand for all petroleum products, and particularly for all kinds of burning oils, resulted in the tight situation of last winter and the situation that is still with us. Turning to the future as represented by the next 12 months, we find the outlook seems about as follows:

Recent estimates released by the Bureau of Mines show an average required crude oil production in the U. S. for 1948 of 5,447,000 barrels a day, natural gasoline production of 408,000 barrels a day, crude imports of 301,000 barrels a day, and product imports of 178,000 barrels a day. This gives a total estimated available oil supply for 1948 of 6,334,000 barrels a day. Many industry sources are of the opinion that these estimated supply figures can and will be attained.

Domestic supply is up 7.5 percent from 1947, imports are up 9.6 percent, and total supply is up 7.6 percent. This estimated increase in new oil supply for 1948 over 1947 compares with an increase in actual demand for 1947 over 1946 of 10.9 percent, and an average increase in demand per year over the past 14 years of between five and six percent. Thus the percentage increase in supply for 1948 is greater than the average annual percentage increase in demand for

the past decade, although less than the percentage increase in demand for 1947 over 1946.

Since in 1947 practically all our reserve capacity was called into play and the industry is now running on a full production basis, increased production in this country, practically speaking, can come only from new wells. It should be emphasized that the estimated supply for 1948 is an all-time high record for the industry. Refinery capacity is available to run the total available crude supply, although the balance is a close one. A number of new refinery installations will be completed towards the end of the year, however, which should ensure no bottle-neck in refining capacity occurring during the winter of 1948-49. Tanker transportation should be sufficient during 1948 to move all available supplies, although again the balance is a close one.

New pipeline construction which will be completed this year should tend to relieve somewhat the recent tank car shortage, so that all in all the industry, I think, should be able to transport and refine all the crude available and to transport and distribute all the products available in 1948. The supply picture is reasonably clear and barring unforeseen circumstances such as catastrophes, strikes or unusually severe weather, I think there is little to fear.

Demand Estimated

The big question is demand.

Estimates of the increased demand for petroleum products in 1948 have been made both by Government and industry. The Bureau of Mines recently estimated that 1948 U. S. domestic demand will be 7.3 percent higher than in 1947, or still somewhat above the historical normal annual increase. An estimated decline in exports of 15.1 percent, however, will result in a total over-all increase in demand in 1948 of 5.6 percent. With an increase in supply of 7.6 percent, this increase in demand should be met satisfactorily.

The difference would represent a very desirable and necessary building up of stocks in order to permit the industry to keep refineries and transportation facilities going fully and efficiently, and to avoid distribution problems and spot shortages. About two-thirds of the stock increase is estimated to be needed for re-

plenishing depleted distillate fuel stocks which are far below satisfactory working levels. Estimates which my own company have made check reasonably well with these Government figures.

It is of interest to note that the demand estimates are based on an increase in gasoline demand of 5.7 percent in 1948 over 1947, and increase in kerosene and distillate fuel demand of approximately 12 percent. Residual fuel shows no increase, and other products such as liquefied gas, lube oils, asphalt and other specialties increase a little under five percent in the aggregate.

These estimates are based on the best data available at this time, and are predicated on the assumption that the present industry trend of making more distillate fuels at the expense of heavy residual fuel will continue. Much of the new refining equipment being built is designed for this purpose, and success in meeting the above product yield distribution is dependent upon the completion of this construction.

An adequate allocation of steel for this purpose is essential, and also for the drilling of the many wells which we are counting on to make available the estimated supply of crude oil.

I would like to point out that with an increase of 7-8 percent in supply, on a normal yield basis all products would normally go up about the same percent, and an abnormal yield increase of distillate fuels can come only at the expense of some other products, and industry's plans are to make it largely at the expense of residual fuel. If new refining equipment is not completed, it will mainly affect distillate fuel products. To provide for this contingency, an increase in supply of 8-10 percent in distillate fuels seems a more reasonable and conservative estimate to use.

So if the demands for products do not exceed the amounts indicated above, the industry should be able on an over-all basis to meet them satisfactorily. I should say here that present demand estimates are based on the latest military requirements given to the industry, and if greatly increased military demands are made, the situation would become correspondingly very much tighter.

We are all interested beyond the immediate situation of the next year or so, and with regard to the longer-range picture there are (Continued on page 58)

Excerpts from a talk presented May 24 at A. G. A. Joint Production and Chemical Committee Conference in Asbury Park, N. J.



Mr. Hinds demonstrating chart board during current training program

Supervisory Training Pays Large Dividends

Mississippi management finds company-wide self-education plan an effective prescription for improving employee relations

By JOE H. HINDS

*Training Supervisor
Mississippi Power & Light Co.,
Jackson, Miss.*

● The following article, written exclusively for the MONTHLY, was submitted by the A. G. A. Personnel Committee.

WARNING: "Survival of the free enterprise system in America will depend largely upon the future course of its industrial relations."

Will both industry and labor heed this warning which carries with it the not too subtle threat of possible socialization of private business by government should friction continue in its relations with labor? What is management doing now, both large and small, to develop the sound relationship with the workers of America which will lead eventually to the desirable goal of understanding, co-operation, and lasting industrial peace?

Typical of sick patients generally, many large corporations which suffer

from acute labor relations pains are doing nothing but holding their corporate sides praying fervently for the growing ache to disappear. Others, favoring self-medication, are searching their industrial medicine chests for a quick remedy. A few are diagnosing the ailment with the assistance of expert advice and applying as a tonic a liberal dosage of time-tested truths.

A company-wide self-education program for supervisory personnel has been under way in the Mississippi Power & Light Company for over a year. Based on the principle that the key to industrial harmony lies in a man's study of the human side of his affairs and environment, his study of the men working above him, working with him, working under him—his ability to understand men—this training plan has achieved notable results.

Before inaugurating the program for the purpose of developing better teamwork between supervisors, between em-

ployees and supervisors, and between departments, most of the offices of the company were visited. First-hand information was secured and our training problems were discussed with many of our supervisors. Questions were asked of department heads and clerks, of division managers and linemen, who then supplied their ideas and suggestions. It was found that our supervisors desire to know what problems other supervisors in our own company and other companies have, how they approach them, how they solve them.

Our people recognized that concepts of personnel administration have changed, that personnel methods and techniques have also changed, and new ones have been added. They felt that it would be helpful if they could sit down and discuss mutual problems of management with fellow supervisors.

The questions which were asked and the answers we received indicated that the most effective approach to our training problems would be through conferences of all supervisory personnel. The conference method stimulates individual thinking and gives everyone a chance to express his own thoughts and help develop ideas expressed by other members of the group. Conclusions reached are then the results of collective thinking.

This personal survey also disclosed that the ability of many supervisors to handle the industrial relations part of their work had been gained largely through individual efforts and through the observation of methods used by their own supervisors.

Need of a planned program was clearly evident. Our task, then, was to develop a program which would assist supervisory people, as well as employees, to develop a clearer understanding of the problems faced today by management and employees and to aid them in arriving at practical solutions.

The first step taken was to find out what other companies were doing to effectively solve the same problem. Plans were found to be plentiful and in wide variety. Usually some special success was claimed for each. Few, it was discovered, devoted sufficient time to analysis of the machine behind the machine—the most complex mechanism in the world—man himself.

Many programs in use were prepared or "canned" and did not apply specifi-

cally to our industry or directly to our problems. Much thought was given to the problem facing us and it was decided that for our program to be most effective, we would have to prepare it ourselves. Organization and administration of this program was assigned to the personnel department of our company.

Solving Mutual Problems

Our employment records disclosed that more than half of the employees had been with our organization for only a few years. On the other hand, our supervisors, those responsible for the work of others, averaged close to 18 years of service. The job was to effectively tap this vast accumulation of supervisory "know-how" and apply it to the solution of mutual problems. Briefly, the idea was to let management teach itself. Practical experience would be its text book.

For the purpose of acting in an advisory capacity on procedures and methods in the formation of the program, a panel of management executives was formed which represented all participating departments.

As it could be presumed safely that supervisory forces in general were thoroughly familiar with the technical phases of their jobs, the panel centered its attention on constructing a program which emphasizes predominantly the human side of the employee-employer relationship. The panel agreed that the best help they could give supervisors would be to extend their knowledge and understanding of their management job by providing free access to information, advice, and discussion. A plan was outlined calling for monthly two-hour conferences to be held in the divisions and the general office by groups of ten to 14 supervisors. Each conference was to be under the direction of a conference leader. The training supervisor was selected for this leadership.

In planned conferences a group of supervisors can be more creative and constructive than any one individual. A supervisor advances an idea, another adds to it, a third amplifies it, and so on until a sound contribution to the solution of a problem has been formed. Not only has an idea been formed but a group of supervisors through thinking and analyzing have reached a solution to a problem and set a pattern by which each man individually can do a better job of think-

ing his own problems through to a logical conclusion.

It was decided to prepare written material to be used as guides for conference discussion, and it was the view of the advisory panel that to be fully effective, ideas on the subjects proposed for conference discussion should in most cases originate from the supervisors. Such ideas would then be used to guide the preparation of future study material with the best thinking of the conference groups actually incorporated in the final paper. Both sound film strips and sound motion pictures are employed wherever this type of educational device advantageously supplements presentation of the subject.

There are 12 conference groups throughout the property. These groups are made up of men from all levels of supervision from the president and vice-presidents right on down through the first levels of supervision. No one ever pulls his "rank" and all participate.

Conferences are scheduled a year in advance and every group holds a conference each month according to schedule. These are held on company time under the leadership of the training supervisor and are never allowed to exceed two hours. Questions are used to draw ideas from the groups, particularly when group members are slow to respond or appear hesitant to discuss a subject. Generally, overhead questions are asked rather than asking direct questions of individual members of the groups. Conference papers are prepared and passed out 30 days in advance to stimulate

thinking on the next subject for discussion. At each conference a summary of the previous month's conferences is held throughout the property is passed out and discussed.

Subjects analyzed under the program during the first 14 monthly conferences were as follows:

1. *Introduction to the Supervisory Conference Program.*

2. *Supervisory Fundamentals*—the analysis of supervisors' responsibilities, duties, and desirable ends to be accomplished.

3. *Part 1—Self-Analysis*—consideration of personal characteristics for leadership.

Part 2—Effective Utilization of Company's Annual Report—devising means for supervisors to create employee interest in the effective utilization of the company's annual report.

4. *Selection and Training of Understudies*—determination of reasons for developing understudies and the qualities desired in understudies. (Sound film strip—"Preparation for the Future" used in this conference).

5. *Part 1—Selection and Training of Understudies Continued*—developing methods for training understudies.

Part 2—Methods of Selection and Induction of New Employees—preparation of an employee handbook and check list to be used in connection with induction.

6. *The Man Problem*—determination of the purpose and intent of merit review as a means (Continued on page 56)



J. B. Fountain, chief engineer, conferring with company supervisors on engineering problems

Economic Explorations

New committee attempting to bring into sharp focus numerous economic factors which affect the gas industry's welfare

By ROBERT E. GINNA*

Chairman, American Gas Association
Committee on Economics

THIS new committee combines the former activities of the Committee on Development and Use of Gas Industry Statistics and the Committee on Market and Economic Research.

As authorized by the Executive Board, American Gas Association, the committee is directed:

To coordinate the activities of the Association committees, bureaus, and personnel engaged in studies of an economic nature, including such related fields as marketing research, and statistics; to conduct or arrange for the conduct of such studies; to survey at intervals the needs of the gas utility industry for research in economic matters; to advise with the officers, bureaus and personnel of the Association regarding economic aspects of the gas utility industry; and to undertake related assignments as the occasion arises.

In brief, ours is a broad assignment along the "economic frontiers" of the gas industry.

In view of the wide scope of economic fields to be covered, the committee, at its initial meeting in Washington last February, decided to restrict its activities to broad questions of policy and with specific problems to be analyzed and recommended upon by the following three principal subcommittees, each with a chairman appointed from within and members selected from outside the main committee:

General Economic Research—

Dr. E. W. Morehouse, General Public Utilities Corp., New York; chairman;

Market and Sales Research—

F. B. Jones, Equitable Gas Co., Pittsburgh, Pa., chairman;

Statistical Research—

*Vice-president, Rochester Gas & Electric Corp., Rochester, N. Y.

H. A. Weitzman, Rochester Gas & Electric Corp., Rochester, N. Y., chairman.

As the result of developments since February, the committee decided at its April meeting in Chicago that a fourth subcommittee should be appointed to cover the economic aspects of national, legislative, and regulatory requirements affecting our natural resources, to be known as the Subcommittee on Natural Resources.

These subcommittees are already hard at work on some very fundamental problems and as each project is brought to a completion the conclusions will be immediately released to the industry.

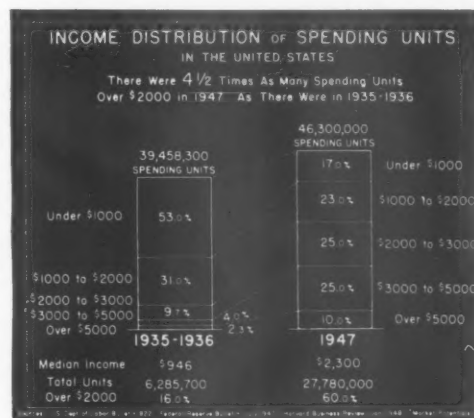
Mr. Morehouse's group has made arrangements for a review and presentation of the gas industry's problems of raising money to finance plant expansion. This includes a consideration of not only (1) the level of earnings deemed by financial specialists necessary to attract equity funds under present conditions and those likely to prevail in the immediate future, but also (2) how best to present the needs for such earnings to the public or to regulatory bodies.

Of necessity, this study will have to give some consideration to the "disappearance of economic value" brought about by trying to meet accelerated demands for service with inflated costs of operation and with the prices of what we sell and the allowable earnings to service our capital determined on the basis of much lower prices and costs of bygone days. Checking this disappearance of economic value and restoring values which have thus far been lost are really the nub of the problem being tackled first by this subcommittee on general economic research.

This group is also addressing itself to a study of the economics of supplying gas house heating service with particular reference to the problem of manufactured gas companies. This is a complex subject which will require much analysis and evaluation before any general conclusions may be expected which could be

applicable to the manufactured gas branch of the industry, if in fact, such general conclusions may ever be reached. The subject of house heating is a perennial one and it seems that too many managements have abandoned any hope that the problem can be satisfactorily handled. In casting about for a "new look" for this important problem, Dr. Morehouse's group decided to resort to the technique of case studies.

As an initial step in this direction and with the thought that it would afford at least a guide to factors which must be considered and the procedure which should be followed by any manufactured gas company in making its own analysis, the committee decided to make a review of any analyses on the subject by individual companies. A letter to this effect was recently sent out but results thus far



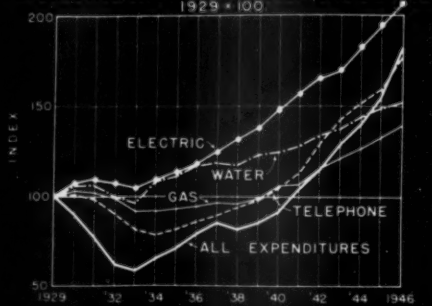
More spending units mean new market potential

are very disappointing.

We are not discouraged by the apparent lack of individual company research, but intend to pursue the house-heating problem with all possible despatch, and endeavor to cover both the manufactured and natural gas phases of meeting this load. The Association's Rate Committee recently published a report calling attention to the urgent need for dependable information on customer load characteristics. The Committee on Economics hopes that at least 20 companies will volunteer immediately to undertake such studies. We have asked the Rate Committee to act as a consultant and to coordinate such studies for the common good.

The program of the Subcommittee on

TRENDS OF CONSUMPTION EXPENDITURES
FOR ELECTRIC, GAS, WATER & TELEPHONE SERVICE
1929 = 100



Accurate estimates of future consumption figures are essential to a study of economic horizons

Marketing and Sales is in keeping with the fact that for the first time in almost two decades, the gas industry is finding the opportunity and necessity to exercise some choice in the acquisition of new loads. What markets should be encouraged? What are the possibilities of the potential markets under current conditions? What loads are being threatened by competition? These questions and others of a similar type are pressing utility managements for some kind of answers today, more than ever before.

Today, modern industrial or merchandising organizations would not think of laying out a sales and advertising program unless it was thoroughly grounded on the best possible factual basis. Some utilities made substantial progress along this line before the war. Today's circumstances have kept most utilities busy with other problems. Consequently, now is an

appropriate time to stimulate the gas utilities to do a better job of engineering their loads by selecting their markets.

First and basic objective of this subcommittee is to encourage the gas industry and the individual utilities to do this kind of a job. The second objective is to help and guide them in modernizing their marketing practices.

Immediate and specific objectives of Mr. Jones' subcommittee, then, may be outlined as follows:

1—Promote and sponsor development of overall gas industry sales and market trends, market research and the analysis of actual and potential markets to be developed.

(a) Exploration of sampling procedure in gas industry marketing surveys.

(b) Industry surveys such as the national water heater survey.

(c) Correlation of census data or other non-gas industry information with gas industry statistics, wherever possible.

(d) Development of national trends and "bench marks" for publicity or financial purposes. (Much of this type of market will undoubtedly be developed in cooperation with the statistical subcommittee.)

2—Stimulate, guide and encourage individual utilities to do a better marketing job by:

(a) Collection of information on what is or has been done locally; then, digesting and disseminating the more practical experiences.

(b) Encourage publication of case stories on how local utilities approached and solved specific market problems.

(c) To develop and offer a consulting service on sales and marketing problems to member companies.

As to the Subcommittee on Statistics, one of its continued concerns will be the next issue of *Gas Facts*, the first issue of which was made available last year. This book containing fundamental statistics of the gas industry had wide circulation and its usefulness to and adoption by financial analysts and others interested in our industry has been gratifying.

To further implement the value of *Gas Facts*, the subcommittee is preparing a list of basic technical and characteristic terms apropos to the volume, and plans to include such material as a "Glossary."

In furtherance of the use and adaptability of suggested definitions of a gas customer and of classifications of gas service, which your former committee recommended last year, the Subcommittee on Statistics is also studying suggested standards for commercial and industrial customer classifications for consideration by the industry in classifying accounts as a further step in establishing

industry-wide statistical and market data on a uniform basis.

In connection with an essential part of the program of "seasoning" the financial world, as to the capital requirements of our industry, Mr. Weitzman's group is assembling a five-year forecast of the construction and financial programs of the gas utility industry.

About one-fifth of the industry has supplied construction forecasts aggregating approximately 350 million dollars for the five-year period 1948-1952. It is significant that the replies indicate 45 percent of this new capital is to be supplied from internal corporate sources as follows:

39 percent from depreciation-amortization accruals
17 percent from undistributed earnings
44 percent from other corporate sources
and of the 55 percent to be raised from external sources, the data shows:

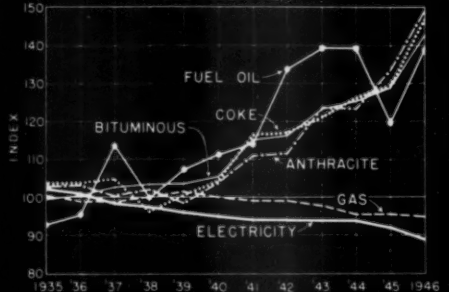
12 percent from bonds
6 percent from loans
1 percent from preferred stocks
2 percent from common stocks
2 percent from affiliate advances
77 percent not sure as to method of raising.

Bear in mind that these figures are only a partial and interim report. The final summary, it is hoped, shortly will be available in greater detail by types of companies, kinds of expenditures, details of the new capital requirements—all by geographic groupings, etc. This material will be of invaluable aid in the activities of Dr. Morehouse's subcommittee covering economic problems.

Outlook and Recommendations

I realize that there may be some skepticism about the need for and the value of economic research, and that some people are inclined to point to the confused opinion among economists as to whether or not there will be a recession in '48, or when we shall suffer a real set-back. Our industry is basic and there are many economic factors affecting its welfare. Not all of them have been sufficiently brought to light and explained to permit their full significance being taken advantage of in solving some of our (Continued on page 57)

RETAIL PRICE INDEXES
OF FUELS, ELECTRICITY AND GAS
1935-1939 = 100



Study of price indexes plays important part in solving many of the industry's economic problems

Mr. Blandings Cooks With Gas

Gas-equipped "Dream House" opened
for public inspection in California



California's gas-equipped "Dream House"

EVERYONE has heard of the "House that Jack Built," but of much more interest to the gas industry is the story of one of the "Houses Hollywood Built," an all-gas model home erected in Bel Air, Calif., as part of a nation-wide campaign to promote the motion picture, "Mr. Blandings Builds His Dream House."

One of many "Dream Houses" under construction throughout the country, the California model home features a gas-fired furnace and an attractive New Freedom Gas Kitchen, completely equipped with automatic gas range, automatic gas water heater, and modern gas refrigerator.

The house was erected by a local construction firm and is a true copy of the home which the Blandings built in the motion picture based on the best seller of the same name. As the story's locale is the hinterlands of Connecticut where

the rural population is served largely by electricity, it was logical that the countrywide promotional campaign establish a tie-up with the electrical industry.

Nevertheless, a number of these homes throughout the nation have all-gas kitchens.

Southern California Gas Company and Southern (Continued on page 55)



Representative of Southern California Gas Co., pointing out features of range in New Freedom Gas Kitchen to committee for Memorial Medical Center



Myrna Loy, star of film, "Mr. Blandings Builds His Dream House," shown at left receiving special mail delivery via helicopter at Bel Air house. Above, Miss Loy in the all-gas kitchen



Sales Are Made on the Local Level

Brooklyn Union one of many companies which have proved effectiveness of promotion in building water heating load

A PAR activity

WITH the American Gas Association's nationwide "warm-up" campaign on automatic gas water heaters entering its third month of intensive effort, proof of local gas company support is beginning to pour in.

The current drive, forerunner of a probable all-out gas water heating drive in 1949, is run by the local utility which supports it with local advertising and sales contests. Theme of the present campaign is "For Hot Water Magic-Gas Has Got It" and gas companies are being encouraged to use that slogan in their tie-in efforts.

Added force is being supplied by advertising and tie-in material of individual Gas Appliance Manufacturers Association members. A complete portfolio of water heating sales material di-



John Blanchfield explaining Brooklyn advertising campaign to dealers. Sales prizes heaped at rear

YOURS TODAY!

FASTER hot water on EASIER terms

—a new **bryant** 

BRYANT AUTOMATIC GAS WATER HEATER \$19 down
A YEAR AND A HALF TO PAY

We say it—you'll say it—everybody who owns a new, fully automatic Bryant says it! The new Bryant gives you instant, constant hot water—right around the clock—on unbelievably easy terms that include delivery and installation. And you can get your time-saving, work-saving Bryant now!

Oceans of hot water—with a Bryant!

You can use your automatic washer all you want, and have abundant hot water for other household chores right away. Our engineers will recommend the size Bryant you need. With the handy thermostat, you'll get water at just the right heat, with never a flicker of wasted Gas!

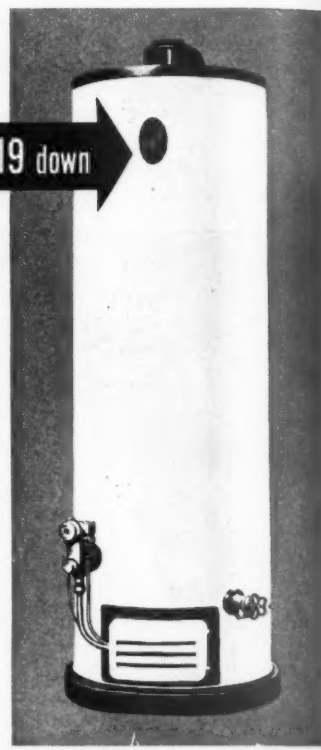
Save money—with a Bryant!

Water heats faster—stays hot longer, in the well-insulated, galvanized steel tank. The exclusive Aeration Plate reflects heat back into the water—keeps your Bryant cool and clean outside. And water always flows crystal-clear from the tank that's kept rust-free by Bryant's new Protect-O-Rod.

Free trial and easy terms—with a Bryant!

Just say the word—you can try the Bryant at home for 60 wonderful days of carefree water heating. It won't cost you a cent. Your old coal pot brings \$25 on a trade-in, and you have 18 months to pay the easy-to-meet terms. Just call at any Brooklyn Union office or your own plumber-dealer's. Order your beautiful Bryant today!

THE BROOKLYN UNION GAS COMPANY
176 HENSEN STREET, BROOKLYN 2, N. Y. TRIANGLE 5-7300
GAS—FOR THE LAST WORD IN FULLY AUTOMATIC WATER HEATING



A major part of Brooklyn utility's advertising budget is devoted to gas water heater promotion

rected mainly to plumbers and dealers is being distributed by the A. G. A. Promotion Bureau.

One of the outstanding pioneers in this field is The Brooklyn Union Gas Company which has amassed an impres-

sive record proving the effectiveness of local promotion in building the water heating load.

During the first five months of 1948, this company sold 3,110 gas water heaters, compared (Continued on page 50)



James F. Howley, manager, dealer relations, Brooklyn Union, inspiring dealers with sales fervor during a recent sales contest meeting. At each side are manufacturers' displays of gas water heaters

Appliance Corrosion Under Attack

A. G. A. sponsored project at Battelle develops apparatus and procedures which closely simulate many of the conditions which exist in central gas heating equipment

A PAR activity

BROAD objective of the research projects sponsored by the American Gas Association Committee on Domestic Gas Research at Battelle Memorial Institute, under the immediate direction of the Technical Advisory Group for Central Gas Space Heating Research (Project DGR-4-CH), is to study and determine the various factors influencing corrosion behavior of metals and materials in the presence of the combustion products of fuel gases. It is hoped that such a program will eventually provide data, in quantitative terms, which will enable the manufacturer or user to predict whether materials selected for appliance construction will withstand corrosion for the design life of an installation.

To determine what had previously been done in this field and to provide a basis for an experimental attack on the problem, a literature survey was prepared. Findings of this survey have previously been published in Report No. 1 to the Association. (Literature Survey on Corrosion of Metals and Materials by Flue Condensate—February, 1947).

Consideration of the published information indicated that there were surprisingly few published papers dealing directly with corrosion of gas appliances by products of combustion of fuel gas. This appears to be true in spite of the fact that the subject has attracted considerable attention. It is generally agreed that the sulfur compounds in the fuel gas, or rather their oxidation products, sulfur dioxide and sulfur trioxide, give rise to potentially corrosive combustion products. This is particularly true in the presence of condensed moisture.

Considerable information has been published with respect to composition, combustion characteristics, actual dew points of typical fuels, and flue products. A number of references can be found in the literature concerning economical and successful methods for removing hydrogen sulfide from fuel gas. A few

By H. A. PRAY, R. S. PEOPLES
and R. S. DALRYMPLE

*Battelle Memorial Institute
Columbus, Ohio*

methods have been reported for removing organic sulfur, but as yet they are not widely used on a plant scale. In view of the present critical fuel situation necessitating the more widespread use of low-grade fuel, it is quite possible that it may never be feasible to reduce the sulfur content to a point where severe corrosive conditions are totally absent.

A few investigators have made laboratory studies of the resistance of metals and materials to sulfur-bearing fuel gases which have yielded somewhat comparable results and valuable indications but, in general, they have failed to fulfill some of the conditions existing in actual service. For the most part, the published information and data refer to the corrosion taking place at temperatures of 550° F or less. Equally important is a clear understanding of both corrosion effects and time-temperature relationship at higher temperatures.

Information concerning the suscepti-

bility to corrosion which may result from brazing or welding techniques, from die-forming, and drawing operations is limited and more should be known. Much information is lacking on the effects of other factors such as design, operating temperatures and cycles (condensation and re-evaporation), and methods of installation of various types of appliances with respect to corrosion.

Investigation of many of these corrosion factors is being included in the continued research program which should provide a basis for judging the logical answer to many of the important phases of the corrosion problem. In order to study some of these factors it has been necessary to design a laboratory test and this article is concerned primarily with the present status of the development of such a test, together with a description of the apparatus, auxiliary control equipment, and some test results.

At the beginning of the work, it was felt that a laboratory test should be capable of permitting the study of the effect of such factors as sulfur content, condensation and re-evaporation cycles, time-temperature relationships, etc., on the corrosiveness of flue gas over a wide

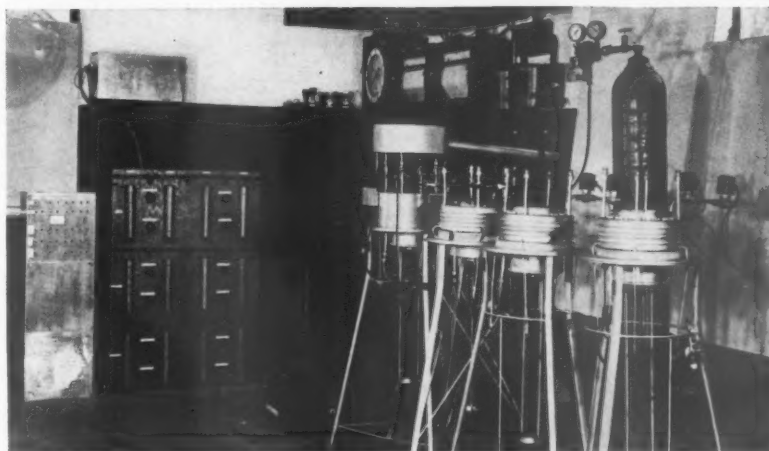


Figure 1. Four corrosion units located at "D" on three-legged angle-iron stands, together with panel housing relays and switches at "A," flow meter panel at "B," and program controller at "C"

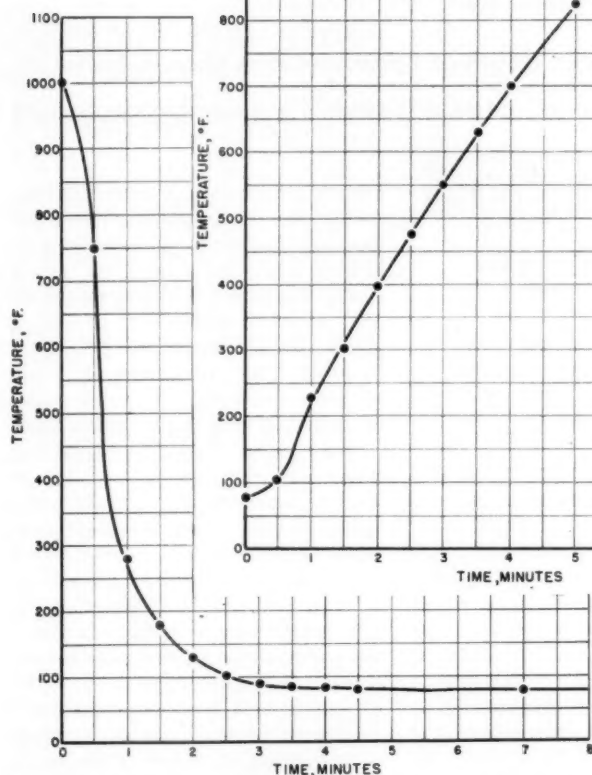
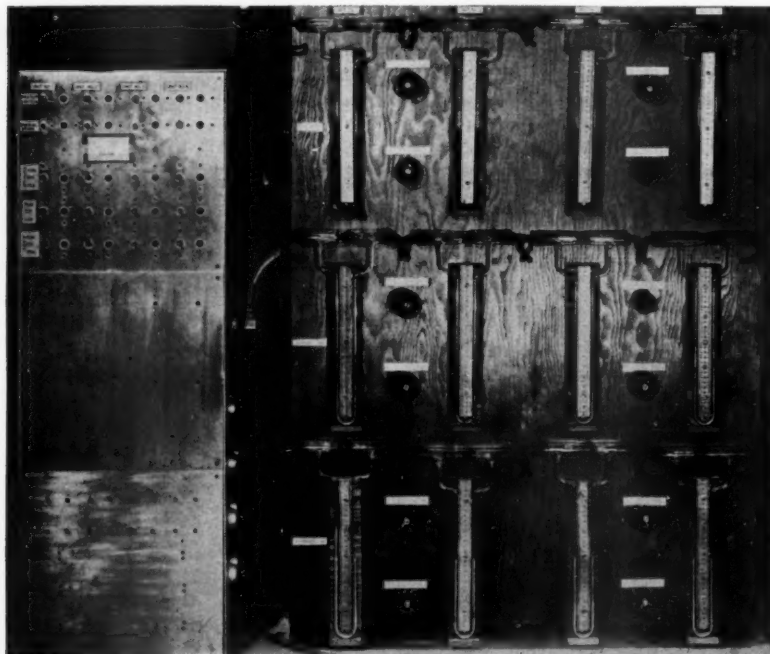


Figure 2 (top left). Typical heating curve. Figure 3 (top right). Typical cooling curve. Figure 4 (below). Front view of flowmeter control panel, right, and panel housing relay and switches, left



temperature range of 80° F to 1000° F under highly controlled test conditions.

Major problems in the development of such a test were: design and construction of a corrosion chamber; determining the most suitable methods and equipment for relatively fast and reproducible heating and cooling cycles; designing necessary auxiliary and control equipment; the best means of providing a source of flue gas, and methods of introducing and controlling the sulfur content of the flue gas. Considerable preliminary testing and work of an exploratory nature was necessary to eventually solve many of the problems encountered and to determine the most suitable design and constructional details for the equipment.

Corrosion Chamber

A corrosion chamber was finally developed for the testing of materials in the presence of flue gas. In addition, an atmospheric-type Bunsen burner was modified to permit control of primary and secondary air which was used to supply a source of flue gas.

The chamber proper (not including the pyrex glass extension to the top) is essentially an electric furnace surrounded by a cooling jacket. With the exception of the outer wall of the cooling jacket, the necessary inlets and outlets, and the pyrex glass top, the chamber proper was machined from a single piece of copper. This reduced the number of welding and soldering operations necessary for final assembly and consequently eliminated many possible sources of trouble with respect to seams breaking during cyclic operation. The outer wall of the cooling jacket was formed from 0.04-inch-thick copper sheet, pleated, mounted, and welded in place.

Thermal stresses induced during cyclic operation were absorbed in this outer wall by constructing it from lighter gauge material than the main body of the chamber and pleating it. Earlier work indicated this to be necessary to eliminate serious warpage. Cooling water can be introduced into the jacket at the bottom through four vertical inlets which are equally spaced about the circumference and immediately after entering the jacket are directed horizontally for a short distance. This reduces localized cooling and insures a more uniform flow

of water and temperature distribution in the jacket. Four steam and one water-overflow exits are contained in the top of the jacket.

The inner wall of the chamber adjacent to the cooling jacket is approximately 0.55 inch thick and is divided into 16 major continuous sections equally spaced about the periphery. This was accomplished by milling vertical flats 1.6 inches in width along the inner wall and extending to a depth of six inches. These vertical flats or sections provide a surface for the mounting and testing of various materials. A very thin shim of the same material as the metal under test is placed between the specimen (one inch by three inches in size) and chamber wall, and specimen together with shim is held firmly in place by means of stainless machine screws.

Forty-eight vertical holes, 19/64 inch in diameter, were drilled completely through the inner wall section between the cooling jacket and inside wall of chamber. They were centrally located with respect to the inner surfaces of the flats and were spaced about the circumference in the manner shown on the drawing. This resulted in three such holes per vertical flat. These holes are for the purpose of accommodating porcelain tubing insulators containing the hairpin-type electrical heating elements, which will be described in detail later.

The bottom of the corrosion chamber consists of a cover plate, bolted in place so that it can be removed, and contains an opening through which flue gas may enter the chamber. An adapter mounted on the outer surface of the bottom plate holds, seals, and centrally locates a 60-mm. glass chimney with respect to the flue entrance. The inner surface of the cover plate is designed to support and centrally locate, with respect to the inner walls of the corrosion chamber, a baffle plate. In turn, the baffle plate supports and centrally locates, with respect to the inner walls, a glass tubing. The glass tubing extends to the top of the corrosion chamber and is of such diameter (6 1/2 inches) as to provide a 3/4-inch channel between tube and inner wall of chamber. The purpose of the baffle plate and tubing is to guide the flue gases from the entrance to the test specimen in a uniform manner.

The top of the corrosion chamber proper has been extended some three inches by the pyrex glass cylinder. The

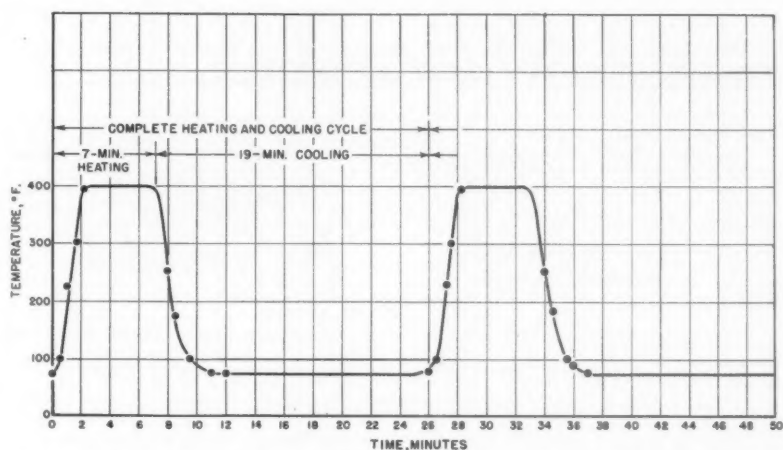


Figure 5. Typical heating and cooling curves for tests under cyclic conditions (between 80° F. and 400° F.) with program controller adjuster for 7-minute heating and 19-minute cooling cycles

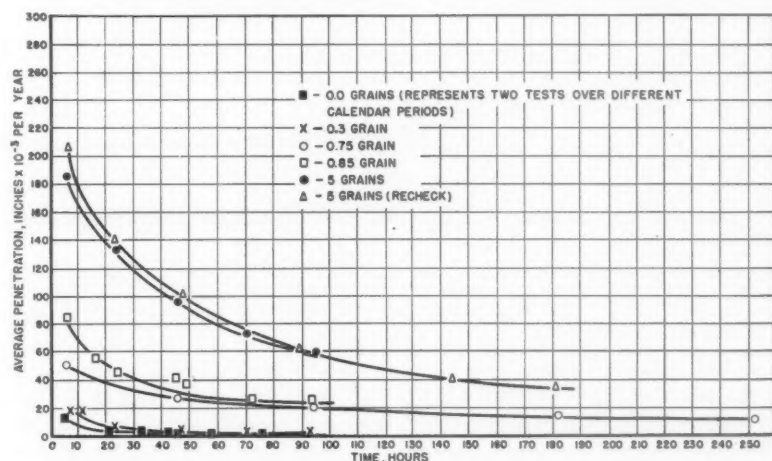


Figure 6. Average penetration inches $\times 10^{-3}$ per year cyclic corrosion tests (80° F. to 400° F.)

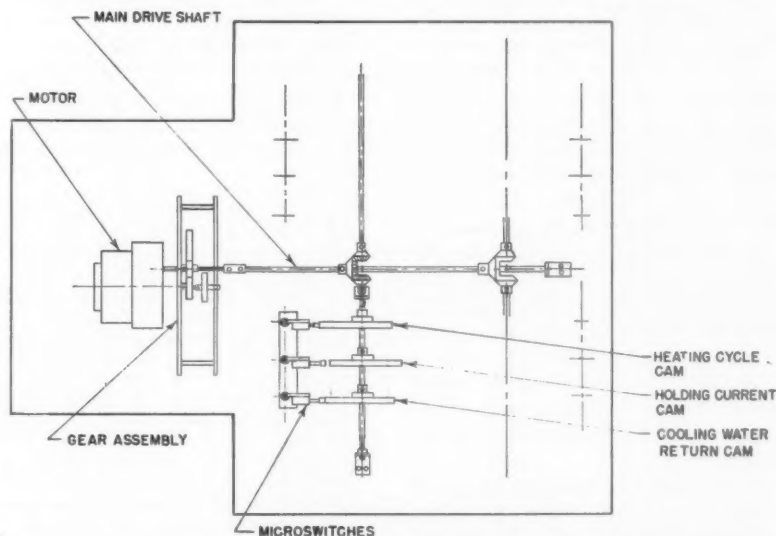


Figure 7. Schematic drawing of the program controller which had to be designed and constructed

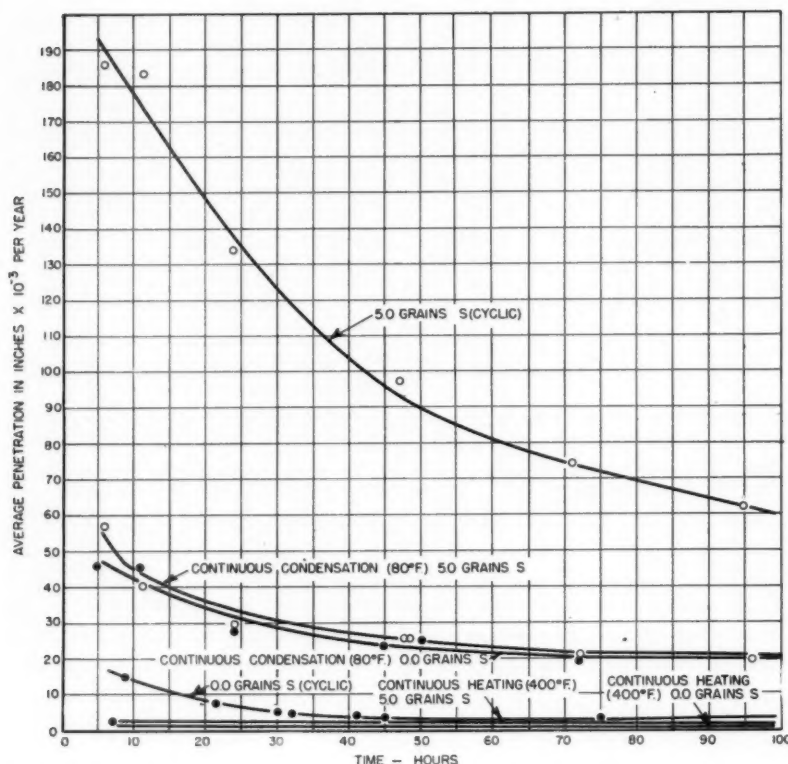


Figure 8. Comparison of corrosiveness of flue gas under cyclic test conditions with continuous heating (400° F.) and continuous condensation (80° F.) with and without 5.0 grains of sulfur per 100 cubic feet of 1,000 B.t.u. natural fuel gas, penetration in inches $\times 10^{-3}$ per year

end is then closed by a pyrex glass cover plate which contains a 1½-inch-diameter opening for the flue gases to escape. This glass extension and cover plate arrangement accomplishes a number of things; namely, it permits observations to be made during operation; it provides an easy way of mounting and removing specimens, and it holds the cover plate sufficiently high above test specimen (approximately the same distance as baffle plate is below bottom of test specimen) to reduce the possibility of the cover plate interfering with flue-gas flow in the vicinity of the specimen.

A 3½-foot high, three-legged angle-iron stand supports the corrosion chamber described above and is insulated from the chamber by means of a transite ring. Figure 1 shows four such units.

Auxiliary and miscellaneous equipment shown in the figure will be explained in detail in the following sections.

As previously pointed out, the drilled holes contained in the inner-wall section of the corrosion chamber are for the pur-

pose of housing electrical heating units. Such units supply the necessary heat to raise the temperature of the chamber and test material to the desired temperature. They were designed to permit the maximum wattage possible within the space allotted. Each unit is in the form of a hairpin, approximately four inches in length (sufficient to cover the length of the flat-wall sections on which the specimens are mounted), and bent to the proper shape to allow insertion in a

porcelain protection tube. The tube with the heating element is then housed in the hole in the chamber wall.

Three such hairpin heating units are required per vertical flat. To reduce the number of electrical connections required, 48 such heaters were formed into one continuous and complete unit from a single strand of No. 14-gauge chromel "A" (0.140 ohm per foot electrical resistance) wire approximately 37 feet long. This forming operation required the designing and construction of a special mandrel. The complete unit has a total resistance of 5.0 ohms and at 220 volts drew about 40 amperes. This supplies 8,800 watts to the chamber (approximately 550 watts to each of the 16 major wall sections), which is sufficient to heat specimens from 80° F to 1000° F in seven minutes. A typical heating curve is shown in Figure 2.

Cooling water, maintained at 80° F, is supplied (by means of a pump) to the corrosion chamber through the four inlets from two thermostatically controlled water reservoirs. These reservoirs are of sufficient capacity and so controlled as to maintain a constant supply of 80° F water at 1½ gallons per minute. At this temperature and flow rate, the specimens mounted on the inner walls of the chamber and in the presence of a stream of warm flue gas can be cooled from 1000° F to approximately 80° F in three minutes. A typical cooling curve is shown in Figure 3, and the water reservoir can be seen in the background in photograph of Figure 1.

In operation, under cyclic conditions, considerable steam is generated in the water jacket of the corrosion chamber. This is taken care of by a steam expansion chamber mounted on the four vertical steam exit tubes contained in the top

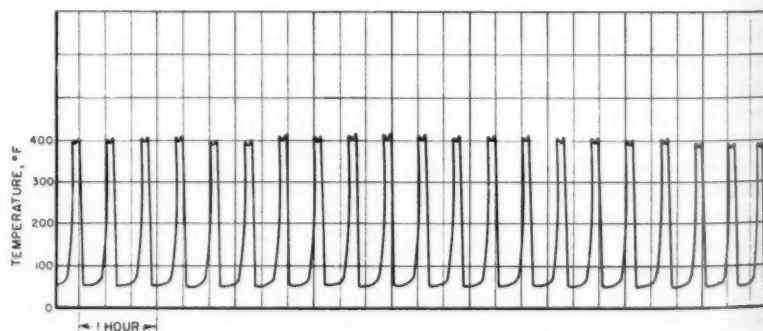


Figure 9. Portion of an actual time-temperature graph

of the water jacket. Figure 1 shows a chamber in position on the corrosion apparatus.

The flue gas is secured from an atmospheric type burner (Bunsen) modified to permit control of primary and secondary air. A 60-mm. pyrex glass chimney 24 inches long, mounted on a burner, conducts the hot flue gases to the entrance in the base of the corrosion chamber. This arrangement can be seen in Figure 1. Under burner conditions to be described in a later section, the flue gas arrives in the vicinity of the test specimen at a temperature of approximately 300° F. The flowmeters (monometer-orifice type), together with valves necessary to control air and gas fuel supply for the operation of four units, can be seen in Figure 4.

A safety device is provided by means of a solenoid valve in the fuel gas line operated through a controller and a thermocouple attached to the wall of the glass chimney. The controller is set at a temperature a few degrees higher than that of the wall when burner is operating. This maintains the solenoid in the open position. If the flame is extinguished during operation, the temperature drops below that set on controller and controller closes solenoid.

Control apparatus was designed to permit either manual or automatic operation of four of the above-described corrosion chambers under cyclic test conditions (heating to some temperature up to 1000° F and then cooling to a selected lower temperature which may be either above or below the dew point of the flue gas). To accomplish both automatic and manual control required considerable equipment such as relays, switches, solenoids, etc., and designing and construction of a program controller.

Figure 7 shows a schematic drawing of the program controller. It consists essentially of a motor, speed reducing gear assembly, four shafts (one for each chamber) which carry three cams, and microswitches. The cams control the on and off periods of the heating unit and the flow of water to the jacket in the corrosion chambers through a system of microswitches, relays, and solenoids. The length of heating and cooling cycles may be varied by changing shaft speed and the design of the cams.

A photograph (Continued on page 59)

Industrial Relations Round-Table



Prepared by A. G. A.
Personnel Committee

● **Check-off of union dues** under the Taft-Hartley Act has presented a problem to many companies. A recent Justice Department memorandum has clarified the question to some extent by giving an opinion which states that initiation fees and assessments, as incidents of union membership, are included in the term "membership dues." The same memorandum opines that check-off authorizations which are irrevocable for one year and then are revocable during a short escape period, but, if not revoked during that period, are then irrevocable for another year, or from year to year until revoked during the annual escape period, are not counter to the intent of the Taft-Hartley Law. The memorandum dated May 13, 1948, was from the Assistant Attorney General, concurred in by the Assistant Solicitor General, to the Solicitor of the Department of Labor.

● **The "Employee Benefit Program"** of the Consolidated Edison Company of New York, Inc., is the subject of a six-page article in the May 1948 issue of the *Monthly Labor Review*, published by the Bureau of Labor Statistics, U. S. Department of Labor. To those who have an interest in retirement provisions, group life insurance, medical care, and hospitalization benefits, this article is recommended.

● **Absenteeism is a problem** not peculiar to private industry. That it is also found in government service is revealed by the following quotation from the *Beacon*, an employee publication of the Philadelphia Naval Shipyard:

"Emphasizing that the amount of sick leave taken during the past few months had risen to a point which indicated a widespread abuse of the sick leave privilege, Rear Admiral H. N. Wallin, shipyard commander, announced that 'effective immediately, sick leave requests shall be accompanied by a supplementary certificate from a practitioner for all periods of absence if there is any question in the minds of those administering the sick leave as to whether the applicant was incapacitated for the performance of his duty.'"

● **"Helping the Employee to Know and Like His Job"** is the title of a thought-provoking article by R. K. Lane, president, Public Service Company of Oklahoma, in the June 17 issue of *Public Utilities Fortnightly*. Mr. Lane describes a well-rounded employee information program and points out the relationship between employees' ignorance of business facts and a belief in collectivism.

In the same issue, Burleigh B. Gardner, executive director, Social Research, Inc., has an article entitled "The Problem of Choosing Able Executives." He lists 11 traits which appear to be present in successful executives and which may serve as guides in the selection of men for executive positions.

● **The Bankers Trust Company's** 105-page 1948 report on 289 retirement plans analyzes new plans and amendments to older plans adopted in 1946 and 1947 and summarizes a group of plans adopted in 1943-1945. Principal features of the plans are summarized for various businesses and trends of recent years are discussed.

This comprehensive report is of great value to companies contemplating the introduction or modification of pension plans. A copy may be obtained on request by a company official on company letter-head addressed to Pension Division, Bankers Trust Co., 16 Wall Street, New York 15.

● **In the Babcock and Wilcox case** the National Labor Relations Board has reversed itself regarding speaking to employees about unions on company time. The Board now finds that such meetings and speeches are perfectly proper provided no threats or promises are made.

● **One Federal District Court has over-ruled** the view of the Wage-Hour Administrator that clothes-changing time is working time. The court found that clothes-changing time was not working time unless a contract, custom or practice made it so.

● **The general counsel of the National Labor Relations Board** has ruled that no union shop elections will be held where the state law prohibits the union shop.

● **In a recent English film it's "Odd Man Out,"** but the N.L.R.B. says the odd men are in (pardon the pun), and that masons, bricklayers, and plasterers must continue to be represented by the United Steelworkers.

Seriously, the N.L.R.B.'s decision in the matter of the National Tube Co., Case No. 8-R-2476, found that while the bricklayers employed in that company are a distinct craft, nevertheless the bricklayers are intimately connected with the steel making process itself and therefore may not be designated as a separate bargaining unit. This decision is of interest to those utility companies which have been concerned about the policy the N.L.R.B. might follow in administering provisions of Section 9(b) (2), Taft-Hartley Act.

Research at Work

Association's Gas Production Research Committee maintains an extensive assault on peak load and other coordinated problems

A PAR activity IT IS not strange that the Gas Production Research Committee, American Gas Association, which brings together at frequent intervals some of the foremost gas engineers of the industry, has devoted considerable time to the round-table discussion of peak load problems and what to do about them. Such discussions have been an effective means for the exchange of ideas and information for companies having direct representation on the committee.

These activities, however, have received little publicity on an industrywide basis. Neither is it widely realized that a broad and coordinated attack on peak load and related problems is a major concern of the gas production research program. The industry's load factor is progressively worsening with the increasing utilization of gas for house heating and, as has been frequently pointed out, experience indicates that the advent of natural gas in manufac-

tured gas areas may not be of itself a cure for peak load problems, but on the contrary may tend to increase the complexity and severity of the problem.

Therefore the industry as a whole, including both natural and manufactured gas enterprises, is vitally concerned with the steps being taken toward solution of these problems. Gas production research activities in this connection fall naturally into two categories: (1) steps concerned with the correlation and dissemination of existing information and (2) active research projects designed to develop additional information and new methods.

In the first category, attention is directed to a group of reports written by members of the Gas Production Research Committee which discuss different means of getting maximum production, for example, from existing water gas equipment, utilization of LP-gas mixtures to supplement manufactured gas supplies, and other means. These papers are listed below.*

In the second category, four research projects are directed to specific aspects of the peak load problem. Three of these are short-term engineering projects as follows:

Catalytic Reforming—This work is going into production on a considerable scale and a report on the utilization of higher and more olefinic hydrocarbons will be forthcoming shortly. Earlier reports are contained in the A. G. A. MONTHLY, April 1946, February and April 1948.

High B.t.u. Oil Gas—Currently undergoing quantitative tests as to oil efficiencies and fuel saving and its tolerance for very high carbon oils. By September confirmation should be obtainable respecting the very promising results indicated thus far.

High Temperature Oil Preheating—On the basis of theoretical calculations, preheating the oil to its bubble point in the vicinity of 200 psig would substan-

tially reduce the heat load on the carburetor and therefore should permit substantially higher throughputs and possibly better oil efficiencies. These calculations are now being tested in the laboratory and if results are favorable may be subjected to plant-scale tests later.

On the laboratory side is a *Mixed Gas Research Investigation*. The relationship of this project to the peak load problem is obvious since any widening of the known limits of gas interchangeability increases the number of choices available to the producer with respect to supplementary gas supplies. Testing and experimental work on this project is 70 percent completed. The first report on the interchangeability of coke oven gas will be ready for distribution in about six weeks (for reference, see A. G. A. MONTHLY, June 1947).

Thus it may be seen that in answer to the question—*The peak load problem: What to do about it?*—a large amount of information has already been made available and more information is being developed and will be released to the industry through the MONTHLY and other means of publication.

INDUSTRIAL GAS HEATING RESEARCH

● An illustrated talk entitled "Investigation of Induction Heating in Relation to Industrial Gas Heating" was delivered by George A. Uhlmeier, acting manager, Quad-Cities Zone, Iowa-Illinois Gas & Electric Co., Rock Island, Ill., during the annual spring meeting, Midwest Industrial Gas Council, in Aurora, Ill., June 3-4.

Mr. Uhlmeier, a member of the Committee on Industrial and Commercial Gas Research, American Gas Association, based his talk on research project IGR-58, which the committee is conducting at Battelle Memorial Institute, Columbus, Ohio. (Battelle's report "Induction Heating in Relation to Industrial Gas Heating" is now available from A. G. A. headquarters at one dollar a copy.)

* Water Gas Set Capacities, P. T. Dashiell, A. G. A. MONTHLY, December 1945.

Utilization of Hydrocarbon Gases in the Production and Distribution of Manufactured Gas, E. G. Boyer, *American Gas Journal*, October 1945.

The Utilization of Liquid Petroleum Gases Replacing Manufactured Gas, E. G. Boyer, *American Gas Journal*, August 1945.

LP Gas Plant and Distribution Practice, E. G. Boyer, A. G. A. MONTHLY, July-August 1946.

Production of High B.t.u. Gas, E. L. Hall, A. G. A. MONTHLY, October 1947.

Peak and Base Load Gas Production Past and Future, E. G. Boyer, *Gas Age*, June and July 1946.

Use of Natural Gas to Include Manufactured Gas Plant Capacity, R. E. Kruger, *American Gas Journal*, May 1948.



Analyzing products of catalytic gasification of hydrocarbons—one of four A.G.A. Gas Production Research approaches to peak load problems

Factors of Gas Oven Performance

Laboratories' work isolates and establishes important mathematical relationship between many oven design factors

By H. J. HENSE

American Gas Association
Testing Laboratories

GRADUALLY, through research sponsored by the American Gas Association Committee on Domestic Gas Research, many design factors which, taken together add up to advanced gas range design, are being isolated and mathematical relationships between them established.

In the previous discussion of broiler design (May 1948 A. G. A. MONTHLY) three major factors were considered. These were flue area, height of flue outlet above burner ports, and distance between ports and broiler top lining. A similar relationship for oven design is reported in Research Bulletin 47, "Research in Fundamentals of Design Features Affecting Oven Performance."*

The oven design relationship includes factors for the rate at which gas is burned and for the amount of air present in flue products resulting from the combustion process. It is expressed mathematically as follows:

where:

$$E_{\text{calc}} = \frac{14,000 (7.86 + B^2 H) A}{BI}$$

E = excess air, percent of that theoretically required for complete combustion

B = distance between burner ports and oven bottom, in.

H = height of center line of flue outlet above burner ports, in.

A = flue outlet area, sq. in.

I = gas input rate, B.t.u. per hr.

*\$1.75 a copy. Purchasers within Greater New York City limits please add New York City sales tax when remitting with orders.

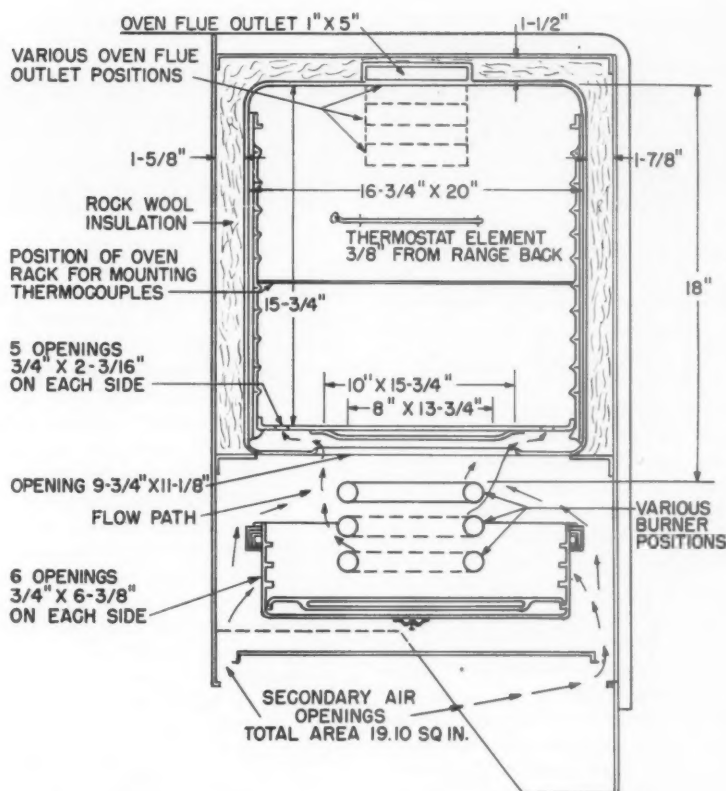


Figure 1. Cross-sectional view of experimental oven-broiler section showing various burner and flue outlet positions employed in developing new oven design formula

Development of the formula represents a refinement of one established earlier and reported in Domestic Gas Research Bulletin 8. While factors "E" excess air, and "I" gas input rate, are not new to the equation, they are affected by the introduction into the expression of factor "B" distance between burner ports and oven bottom, which is new. A general over-all view of various burner and flue outlet positions which

were experimentally employed in developing the formula is shown in Figure 1.

Solving the equation for "E" excess air, provides a convenient method for balancing the various dimensional factors of oven design since an increase or decrease in excess air as a rule results in a corresponding increase or decrease in both preheating and maintaining rates. The term, excess air, is defined as the amount of air present in flue gases ac-

TABLE 1—APPLICATION OF EQUATIONS TO CONTEMPORARY RANGES

H	A	I	B	E	E	E
Flue Height, In.	Flue Outlet Area, Sq. In.	Gas Input Rate Btu./Hr.	Burner Setting Below Oven Bottom, In.	Excess Air Observed, %	Excess Air Calc. New Value, %	Excess Air Calc. Old Value, %
15 ⁹ / ₁₆	5.22	22,000	2 ¹ / ₈	189	198	134
15 ³ / ₄	6.00	21,000	2 ⁹ / ₁₆	273	258	156
17 ¹ / ₂	4.05	21,500	3	240	240	107
15	5.00	19,900	1 ³ / ₄	170	174	130
16	3.90	19,750	2 ¹ / ₄	205	176	106
18 ¹ / ₈	4.82	21,000	1 ¹ / ₂	176	167	138
15 ³ / ₄	5.00	20,000	2 ³ / ₄	240	273	137

companying complete combustion at the burner. It is usually expressed as a percentage of the air theoretically required for complete combustion. For convenience percentages of excess air for various values of "E" raised to the 0.908 power, as used in the equation, are shown in Figure 2.

As developed and refined, the equation applies to design situations where the areas of openings for the oven bottom, secondary air, and internal flueways are greater than two and one half times the flue outlet area. This covers the field of contemporary ovens. Application of the new equation to seven contemporary ranges resulted in improved values for excess air which more nearly equaled actual observed values. Observed values and those calculated from both the original and new equations are tabulated in Table 1. All data were taken under conditions of satisfactory combustion.

Rearrangement of the new equation to solve for the individual dimensional factors of oven design results in the forms shown above at right.

While the factor "B" distance between burner ports and oven bottom—results in a complicated equation theoretically employing a plus or minus

$$A \left(\frac{\text{Flue Outlet}}{\text{Area Sq. In.}} \right) = \frac{BIE^{0.908}}{14,000 (7.86 B^2 H)}$$

$$H \left(\frac{\text{Ht. Flue Outlet}}{\text{Above Ports, In.}} \right) = \frac{IE^{0.908}}{14,000 AB} - \frac{7.86}{B^2}$$

$$B \left(\frac{\text{Distance Ports to}}{\text{Oven Bottom, In.}} \right) = \frac{IE^{0.908}}{14,000 A} \pm \sqrt{\left(\frac{IE^{0.908}}{14,000 A} \right)^2 - 31.4H}$$

2 H

quantity, only the plus quantity would be used in practice. The theoretical form allows for a position of the burner above as well as below the oven bottom.

While these equations give results closely approximating observed values for conventional ovens, the magnitude of values obtained varied somewhat with differences in such non-dimensional factors as burner design, primary aeration, secondary aeration, and the baffling of secondary air. Since they did not provide satisfactory values in the case of experimental non-aerated burners, further correlation through research will be necessary. Further investigation of the burner design factor might well include flame distribution, direction and size; primary aeration; burner placement with respect to secondary air openings and secondary air baffles; and flue gas temperature.

It was found that an increase in primary aeration produced more than an equal increase in the total volume of gas discharged through the flue. Apparently an increase in primary aeration causes an increase in the amount of secondary air drawn into the combustion chamber. Baf-

fling of secondary air or guiding its flow towards burner ports also was found to increase excess air. This technique is often helpful in cases where it is desirable to employ a small flue area or a small flue height.

Flue outlet area as determined by use of the equation in practice is the effective flue outlet area. Baffling or use of long, small passage ways introduces restrictions to flue gas flow which reduce this effective area to values less than actual physical dimensions. To eliminate this reduction it would be well to design passage ways to have cross-sectional areas at least 1.25 times the area of the flue outlet.

From time to time as variations in individual design factors become better understood it probably will be possible to relate them more closely to the others. In addition to refining existing relationships, the present study definitely demonstrates that further investigations probably should be channeled along lines of an extremely fundamental nature in order that underlying principles governing oven performance may become better understood.

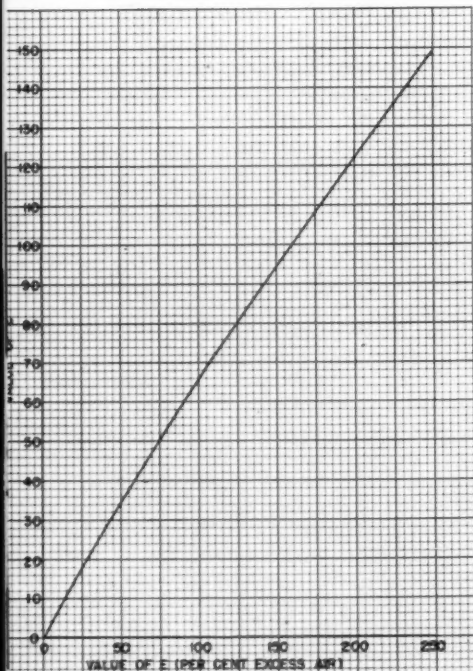


Figure 2. Percentages of excess air shown for various values of "E" raised to the 0.908 power

Household Heating Methods Studied

RESULTS of a new engineering study comparing use of high temperature circulating liquids and vapors for household heating with use of gas are outlined in Research Bulletin 3, published by Institute of Gas Technology, Chicago, in connection with American Gas Association research project DGR-10-B.

Believed to be the first study of its kind strictly from the standpoint of possible utilization of gas in this manner, the work was completed for the Association's Committee on Domestic Gas Research, R. J. Rutherford, Worcester Gas Light Co., chairman.

William R. Hainsworth, Servel, Inc., is chairman, A. G. A. Technical Advisory Group for Burners, Controls and Accessories Research, which supervised the project.

Presented in the report are a literature survey and an analysis of the physical, chemical and heat transfer characteristics of available

high temperature heat transfer liquids and vapors followed by a brief description of the various applications of high temperature fluids to all household heating services. A quantitative evaluation of the tetracresyl silicate system as developed by the J. B. Pierce Foundation, the only system presented in the technical literature to date, is also discussed.

From an analysis of physical and chemical properties of the potentially available heat transfer fluids presented and from the calculations of potential thermal efficiencies, it does not appear, the report states, that present domestic gas appliance thermal performance can be exceeded by substituting vapor-liquid or liquid systems.

Research Bulletin 3, "Supplying Household Heating Services by High Temperature Circulating Liquids and Vapors," can be obtained from the American Gas Association, 420 Lexington Ave., New York 17, N. Y., at \$1.00 a copy.



ACCOUNTING SECTION

JOHN A. WILLIAMS, Chairman

L. E. REYNOLDS, Vice-Chairman

WALTER E. CAINE, Secretary

Management Doubles as Teacher

● Written exclusively for the MONTHLY and contributed by the A. G. A. Accounting Employee Relations Committee of which the author is chairman.



E. R. Eberle

By E. R. EBERLE

*Managerial Assistant
Public Service Electric and Gas Co.,
Newark, N. J.*

WHAT are the responsibilities and authority of the supervisory position? In general, a supervisor is charged with responsibility for the proper work performance of a group of employees and is (or should be) delegated authority commensurate with such responsibility.

More explicitly, a supervisor has the responsibilities for planning and scheduling work and directing the employees under his jurisdiction in carrying out such work. In order to properly discharge these responsibilities he must have the authority and freedom of action which the requirements of the work dictate.

It is fundamental that a supervisor know specifically what his duties or responsibilities are. It is equally important that there be no misunderstanding on his part concerning the extent or scope of his authority.

District Offices

Supervisors in the district commercial offices of Public Service Electric and Gas Company are included under a plan of job evaluation and the responsibilities of each supervisor are clearly set forth in a job specification for each position. Every supervisor is accordingly provided with a specific list of supervisory duties.

In addition to the job specification the supervisor is provided with a Manual of Supervisory Authority which is designed to follow the general pattern of the supervisory job specifications and serves to de-

fine the scope of delegated authority applicable to the detail functions involved under each of the listed responsibilities.

This manual was prepared by a committee composed of representatives of both the line and staff organization. In developing the manual the committee accepted the following as general premises:

1. Scope of authority delegated should be generally as broad as possible, consistent with sound administrative practice, the requirements of adequate local management control, and the supervisory job specifications.
2. Scope of authority delegated should be uniform between all supervisory positions of comparable level.
3. Scope of authority delegated should be clearly defined to preclude differences in interpretation or misunderstanding by supervisors and members of higher management.
4. Scope of authority delegated should clothe the supervisor with the necessary authority and freedom of action within the department to enable him to genuinely supervise his department.

The manual consists of three sections:

Part I is applicable to all departmental supervisors assigned in the company's district offices. A copy of this section is presented as an appendix to this article.

Part II is applicable to all assistant departmental supervisors assigned in the company's district offices who are ineligible for membership in the bargaining unit.

Part III is applicable to all assistant departmental supervisors assigned in the company's district offices who are eligible

for membership in the bargaining unit. Information included in Parts II and III is similar in form to that in Part I and differs only as to nature of responsibilities and degrees of delegated authority.

The size of the departments and number of employees under the jurisdiction of one supervisor varies widely between departments in the company's largest and its smallest district offices. However, the grouping of all supervisory positions in the three categories is based upon the fact that the supervisory duties included in the job specifications are comparable for all of the positions in each group.

Further, the inclusion of all like supervisory positions in a group, regardless of size of operation, is consistent with the principle that while the size of the department will largely determine the proportion of the supervisor's time required for the performance of supervisory functions, it shall not determine the scope of supervisory authority to be delegated to him in performing such functions.

Advantages of Definition

Use of the manual has demonstrated the value of clearly defining scope of supervisory authority. Advantages which have accrued through its use in the district offices include the following:

1. It has insured uniform interpretation and application of job specifications with respect to delegation of authority to supervisors. Supervisors of given departments on similar levels carry the same responsibility and operate within similar scopes of authority.
2. It has clarified and objectively defined limits of authority for the incumbents of supervisory positions. Supervisors have been provided with explicit information as to the exact nature of the functions covered by their responsibilities and the limits of their authority applicable to such functions. This information has also

proven exceedingly helpful in orienting and training newly-assigned supervisors.

3. It has insured that all supervisory employees ineligible for membership in the collective bargaining unit, perform their jobs as bona fide representatives of management. These supervisors are made to understand that they are in fact members of management and that as such they have clearly defined management responsibilities. With respect to eligible supervisory employees who have bona fide supervisory responsibilities, the manual has served to insure that these employees recognize and operate within such responsibilities.

Conclusions

The manual has met with general approval and even enthusiasm by members of the supervisory organization. Higher

management has recognized that it can serve as a method of developing and improving the calibre of supervisory performance.

In a program of supervisory training currently being conducted for supervisors in the company's district offices the manual has constituted a firm basis upon which to found discussion of supervisory problems.

Defining the scope of supervisory authority has proven, in the company's district offices, to be thoroughly desirable from the supervisors' point of view, and sound management from the company's point of view.

Foreword

This outline sets forth the supervisor's scope of authority in each of his major duties. This definite knowledge as to just what authority he has should help the supervisor to do his job most effectively, and to derive the

greatest satisfaction from his work and the associations which that work involves.

In meeting his responsibilities, the supervisor must recognize that many situations call for the use of sound, careful judgment. There is no substitute for good judgment. It is impossible to reflect this point in any formalized list of duties and authorities. This foreword, therefore, draws attention to the imperative requirement that the supervisor must apply good judgment in the exercise of the authorities that are conferred upon him.

One respect in which the judgment factor is important is in meeting unusual situations. For example, assume a given matter in which the supervisor's authority is listed as "full." In all ordinary circumstances he would take final action in such a matter. But occasionally, under that same heading, a situation would arise which involves a question that should be brought to higher management's attention, and only by the application of good judgment can the supervisor recognize such a situation and realize that it is a problem which he should take up with his superior even though the "book" doesn't call for such action.

PUBLIC SERVICE ELECTRIC AND GAS COMPANY COMMERCIAL OFFICES

MANUAL OF SUPERVISORY AUTHORITY

Supervisory Duties and Scope of Authority

PART I

Applicable to Positions Shown Below

Supervisor—Service
Supervisor—Customers Accounts
Supervising Cashier
Supervisor—Credit
Supervisor—Collection and Meter Reading
Display Floor Sales Supervisor
Supervising Storekeeper

SUPERVISORY DUTIES AND SCOPE OF AUTHORITY

NOTE: Supervisory duties listed are exactly as shown in the supervisor's job specification.

The terms used to designate scope of authority in this tabulation have the following meanings:

"Full"—The supervisor has full authority.

"Full-inform"—He has full authority, but must inform his superior of the action taken.

"Recommend"—He has authority only to recommend and to consult with his superior.

SUPERVISORY DUTY NUMBER 1

Plan, schedule, and direct the work of other employees in the department, see that proper standards of work and departmental housekeeping are maintained, and instruct or direct instruction of employees in the detail of the operations.

Item	Scope of Authority
To establish standards of quality and quantity that should be maintained in department.	Full
To reject work for failure to meet established standards of quality and quantity.	Full
To increase or decrease the work load of employees in the department, where such changes would not increase size of working force.	Full
To increase or decrease the size of the working force in the department.	Recommend
To reassign work in own department to meet an emergency or peak demand—	
(a) Involving assignment of employees to work of similar or less skilled grade.	Full

Item Scope of Authority

(b) Involving assignment of employees to work in a higher classification—	
1. For less than eight hours per day or less than 20 hours per week.	Full
2. For eight or more hours per day or 20 or more hours per week.	Full
Precedent established	Full
No precedent established	Recommend
To authorize necessary overtime.	
Precedent established	Full-inform
No precedent established	Recommend
To make incidental rearrangements of work locations within department.	Full
To maintain good housekeeping in the department.	Full
To make decisions for employees concerning unusual problems arising in the course of work, and to interpret instructions.	Full
To know provisions of Collective Bargaining Agreement, and to explain provisions to employees, where such Agreement is in effect.	Full
To train employees—	
(a) Involving explanation and interpretation of Company's general policy and practices.	Full
(b) Involving determination of extent and method of training to be given.	Full
(c) Involving determination of sequence of instruction to be followed.	Full
To schedule meetings within department for training purposes.	Full
To establish standards of performance for customer contact employees.	Full
To requisition supplies necessary for the operation of the department.	Full
To authorize necessary minor expenditures.	Full
To audit and check the work of employees of the department.	Full
To reassign work among employees and to make other changes to meet requirements of health, safety or working conditions (surroundings).	Full
To initiate studies to determine standards of individual performance.	Full

SUPERVISORY DUTY NUMBER 2

Install new procedures or effect changes in present procedures within the limits of standard instructions.

To plan and direct the installation of new standard procedures or revision of existing procedures as it affects his department.

Item	Scope of Authority
To initiate and make changes in local method or procedure within limit of standard instructions.	Full
To change form or scope of departmental records within range of standard instructions.	Full

SUPERVISORY DUTY NUMBER 3

Recommend improvements in departmental methods, procedures, or physical arrangements.
(Recommendation.)

SUPERVISORY DUTY NUMBER 4

Consult with Office Supervisor, Assistant Commercial Manager, and Commercial Manager concerning the status of departmental work and to coordinate the work with that of other departments.
(Duty primarily one of reporting and consulting.)

NOTE: This includes keeping management informed of any unusual development.

SUPERVISORY DUTY NUMBER 5

Confer with other supervisors in the Commercial Office (and with the distribution departments) on matters involving the regular flow of work between departments or the completion of such work.

To initiate discussions with fellow supervisors concerning flow of work between departments. Full

To initiate changes in local procedures to expedite flow of work between departments. Full

To request non-routine departmental service from fellow supervisors. Full

To accede to such requests from fellow supervisors. Full

SUPERVISORY DUTY NUMBER 6

Investigate and report all accidents in the department.
(Duty is essentially to investigate and report.)

SUPERVISORY DUTY NUMBER 7

Confer with Assistant Commercial Manager and Commercial Manager; take action within limits of instructions and make recommendations concerning grievances, the selection, transfer, upgrading, disciplining, rating, safety, health, etc., of employees within the department in order to develop and maintain good employee relations; and maintain substantiating departmental records.

To participate in the interviewing process, and to make recommendations concerning applicants before they are finally selected. Full

To dismiss employees who do not qualify during probationary period. Recommend

To correct or reprimand for unsatisfactory work. Full

To correct minor cause of apparent dissatisfaction which may lead to grievances. Full

To act in the grievance procedure—

(a) Involving discussion with the aggrieved employee and Union representative. Full
(Note A)

(b) Giving decisions in cases where precedents have been established. Full-inform
(Note A)

(c) Giving decisions in cases where no precedents have been established or where formulation of policy is involved. Recommend
(Note A)

To rate employees—

(a) In connection with promotions or transfers. Recommend

(b) In connection with granting or withholding progression increase. Recommend

(c) In periodic rating plan. Recommend

Item	Scope of Authority
(d) To consult with Commercial Manager on all ratings.	Full
(e) To discuss ratings with employees.	Full
NOTE A: On matters so noted, supervisors eligible for the bargaining unit have no authority.	

To grant time off (with and without pay)—

(a) Minor requests (one hour or less) within limits of instructions. Full

(b) All other cases which are within the limits prescribed by Company. Full-inform

(c) Leave of absence of more than one week. Recommend

To keep employees informed by making announcements to employees concerning policy changes that affect them. Full

To initiate a recommendation for promotion of an employee in own department when a vacancy occurs in some other department. Full

To suspend employees—

(a) For inefficient work. Recommend

(b) For insubordination, violation of Company rules or regulations (intoxication, dishonesty, etc.) Recommend

SUPERVISORY DUTY NUMBER 8

Prepare or review for the signature of Commercial Manager, reports, statements, petty cash vouchers, etc., related to the work of the department.

(Report.)

SUPERVISORY DUTY NUMBER 9

Handle correspondence pertaining to departmental activities, and prepare necessary letters for approval.

(Routine.)

SUPERVISORY DUTY NUMBER 10

Approve "Certificate of Number of Hours Worked" for departmental employees.

(Routine.)

SUPERVISORY DUTY NUMBER 11

See that assignments of work of departmental employees are in accordance with respective job classifications.

To reassign work in own department under normal conditions to conform with job specifications. Full

SUPERVISORY DUTY NUMBER 12

Interview customers in the field on unusual service problems of a complex nature, occasionally as required or directed.

To settle customers' disputes involving special arrangements, allowances or adjustments within limits of Company practice. Full

SUPERVISORY DUTY NUMBER 13

Assist employees of a higher classification, under close supervision, as assigned.

(As assigned.)

SUPERVISORY DUTY NUMBER 14

Perform other similar or less skilled related Commercial Office work, as assigned.

(As assigned.)



INDUSTRIAL & COMMERCIAL GAS SECTION

LEON OURUSOFF, Chairman

BERNARD T. FRANCK, Vice-Chairman

MAHLON A. COMBS, Secretary

Ways to "Speak Your Piece"



H. W. Smith

According to ballots filled out by 31 industrial and commercial gas sales managers from utility companies at the Windsor, Ontario, Canada, sales conference of the American Gas Association during the audience-quizz presentation, "Fifty Ways to 'Speak Your Piece,'" it is apparent that: (1) gas men are good joiners, veteran exhibitors, and excellent magazine circulation men, (2) are poor result-getters through the mediums of space advertising and direct mail, (3) are moderately successful in working with editors to gain publicity notice for gas, and (4) are complete babes-in-the-woods at using gifts, novelties, and outdoor advertising techniques.

During the presentation members of the audience representing utility companies were asked to vote on whether or not they had used each of 50 different sales promotion, advertising, and publicity techniques in encouraging industrial and commercial gas sales—and if they voted "yes" to rate the results obtained as "fine," "so-so" or "lousy."

The 50 techniques fall in the following categories: (1) local space advertising, (2) display, (3) circulation of national periodicals over local lists, (4) house periodicals, (5) distribution or sale of text books to help customers buy, (6) direct-by-mail, (7) cooperative programs with manufacturers of equipment, (8) involvement in the activities of clubs, societies, and associations, (9) out-and-our classroom educational work, (10) publicity, (11) customer helps, and (12) gifts and remembrances.

Based upon a platform quiz conducted at the A. G. A. Sales Conference on Industrial and Commercial Gas at Windsor, Ontario, April 7-9, 1948.

By HARRY W. SMITH, JR.

*Harry W. Smith, Inc.
New York, N. Y.*

In addition to the speaker's checklist of 50 techniques which might be employed, the audience reported during the balloting upon the use of other techniques including films, radio, conducted tours of successful installations, tours through the company's plants, and loans of gas company auditoriums to civic groups.

The closing question of the survey concerned the voter's opinion of his own budget for advertising, sales promotion and publicity. Less than one fifth of the house considered its financial allotment for sales-building as "adequate." More than half of the remainder were frank in considering their budgets downright inadequate.

Whatever the vote of gas utility management on this point might be, it is apparent that the boys on the firing line for industrial and commercial gas want more money and think they know how to use it.

There was no intention on the part of the speaker to recommend or discourage any of the 50 listed possible techniques. Many which seemed quite dubious before the poll were included merely to make the list as inclusive as possible.

Yet some gas company, somewhere, had tried every single one.

Apparently, therefore, industrial and commercial gas men have a very clear idea of what they want to do with the additional promotional monies they are requesting.

The most successful technique employed, without challenge, was the distribution of national periodicals over local lists supplied by the gas company. The examples were the well-known publications, *Industrial Gas* and *Cooking for Profit*. Roughly 72 percent and 85 percent of the voting companies use the two publications, respectively. Only one lone voter

indicated unsatisfactory use of this method of getting the industrial and commercial gas story over to his customers. Between one half and two thirds of the entire industry apparently not only uses the technique, but rates it "fine."

Next in popularity with gas men are the promotional techniques of (1) activity in clubs and societies, (like the A.S.M., Restaurant Association, Chambers of Commerce, and the like), and (2) display and exhibition. 79 percent report regular attendance and membership in clubs, societies and associations, 62 percent are involved in committee work or officerships, and 45 percent practice the "greeter's" techniques of selling to the extent of becoming involved in the program-planning or speech-making of the club, society, or association involved.

Shows and Expositions

In the display field 58 percent of the companies were shown both to have tried and to favor company participation in local shows and expositions. 38 percent have had the opportunity to participate in national shows or expositions staged locally. 44 percent have tried the window display technique (probably in the company building), two thirds of these rating the technique successful, one quarter of them feeling lukewarm on the subject, and a small percent actually considering activities in this direction to have been failures. Nine of the voters had tried permanent exhibits (at museums, colleges, public buildings, boardwalks, etc.) and liked the idea. Four energetic souls in the commercial field had used equipment dealers' showrooms to promote sales.

The only blind spot in the whole exhibition picture turned out to be the use of billboards and spectacles to convey the industrial and commercial gas message—only two having tried it, and neither of these being particularly enthu-

siastic. The writer challenges the view, but admits that the nation's gas utility billboards seem to be devoted wholly to promoting the residential load.

Although local newspapers will violently object to the following statement as shaking the very foundations of American business communication, newspaper space advertising does *not* work in selling industrial and commercial gas for specific utility companies. The reasons are obvious. National publications have the greater part of their circulations well without the range of any given utility company's prospect map; newspapers do not specifically address the business-minded public, and local or regional magazines are not strong.

Of the paltry 20 percent of the voters who had tried space advertising in behalf of industrial and commercial gas business, most were only lukewarm or unfavorably inclined. The four fifths who do not practice the technique feel they can spend their money more wisely otherwise.

In the field of editorial publicity there was not a single negative vote. Where the industrial and commercial gas department of the utility had tried to play public relations expert, the vote was for more of the same.

A full 41 percent claimed skill in cooperating with the A. G. A.'s national publicity program, 44 percent have, somehow or other, arranged to serve on a publicity committee of some worthwhile customer group or society. There has been reasonable activity in the practice of distributing worthwhile article reprints, tying in with local drives and charities, encouraging gas company engineers to write articles, and inviting happy industrial and commercial customers to author articles and speeches about their applications of gas fuel—but fairly halting experience in working with the city editors and the business page editors of local newspapers.

Also in the field of public relations it was discovered that the gas company auditorium was actively used for conducting courses and loaned to civic groups. Six of the men in the audience regularly participated in trade school training programs to teach better industrial and commercial gas utilization to the coming business generation, and five made a practice of lecturing at universities and colleges. Three had accepted dates to deliver lectures before educational groups by writing the Association for a "canned" spiel.

Five actively used the company testing laboratory as a public relations tool, and swear by it; two regularly conduct group tours of major industrial and commercial gas installations, and four make a prac-

tice of taking prospect groups through the gas plant itself.

Many at the meeting were much encouraged to find that eight in the audience had sold management upon incorporating the industrial and commercial gas story into company movie films or radio scripts.

Roughly one quarter of the voters had explored opportunities in "putting the fee" on the equipment manufacturer by asking him either to make mailings to gas-company-supplied lists or acting as host to prospect groups at his plant. Those who have acquired the habit largely consider it productive, but there was measurable disappointment, and more than measurable indifference, to what the speaker called "using the manufacturer."

Perhaps the most alarming disclosure was the lack of skill on the part of industrial and commercial gas men in using the most time-tested of all sales promotional techniques adaptable to specific local customer groups—direct-by-mail. Of nine direct-by-mail techniques listed, only one had been tried by more than 20 percent of the voters. 38 percent had made mailings consisting of letters and enclosing manufacturers' literature, and almost as many were disappointed in the results as were encouraged.

A bare one fifth had produced special booklets for customer and prospect distribution, although those who had seemed to have gotten results.

In the use of broadsides, syndicated A. G. A. material, cooperative dealer

Display Groups Assign Exhibit Space



Industrial Group: (l. to r.) Larry Foote, New York; Frank J. Fieser, New York; Herman Gehrich, New York; A. C. Eversole (standing), Toledo; A. N. Mason, New York; Frank H. Trembly, Jr., Philadelphia, chairman; M. A. Combs, A.G.A.; D. A. Campbell, Cleveland; C. E. Cunningham, Philadelphia

TWO groups of the Committee on Displays at National Expositions, Frank H. Trembly, Jr., The Philadelphia Gas Works Co., chairman, met recently at American Gas Association Headquarters to formulate combined exhibit designs and assign space to co-operating exhibitors in coming national expositions. The industrial group met to arrange details of the A. G. A. Combined Industrial Gas Exhibit at the National Metal Congress and Exposition in the Commercial Museum, Philadelphia, October 25-29. An area of nearly 7,000 square feet will be occupied by

industrial heating equipment manufacturers to make this one of the largest exhibits ever sponsored by the Industrial and Commercial Gas Section.

The other group met to assign space and make other detailed decisions for the National Hotel Exposition in Grand Central Palace, New York, November 8-12. Leading manufacturers of heavy duty commercial cooking equipment will appear in the A. G. A. Combined Commercial Gas Cooking Exhibit, which will occupy more than 4,500 square feet of space.



Simultaneous meeting of Commercial Group at A.G.A. Headquarters: Al Hess (left), New York; M. A. Combs, A.G.A.; C. A. Shear, New York; F. J. Fieser, New York; Frank H. Trembly, Jr., Philadelphia, chairman; Frank Drohan, New York; Ray Martin, New York, and J. T. Heilig, Newark

mailings, the distribution of reference data and technical information, "gimmick" letters, straight continuing letter campaigns to prospects, the distribution of A. G. A. advertisement reprints, and the mailing of blotters and printed reminders, not more than 15 percent in any case, and some times as few as three percent, had gotten to first base. Eight out of ten hadn't even tried to use the postage stamp in selling. Many were sufficiently disappointed in direct-by-mail promotion to be forced to report failures with the technique.

The writer (strictly as one man's opinion) feels that here is the greatest single opportunity for Association service to industrial and commercial members.

Perhaps the fault lies with the mailing lists of customers and prospects which utility companies have built (or failed to build). Perhaps the lack is good direct-by-mail advertising professionalism. If recommendations are in order on the basis of the Windsor study, let it be suggested that industrial and commercial gas sales managers engage the best direct-by-mail specialists in town, and that the Association form a committee of the Industrial and Commercial Gas Section devoted to making direct-by-mail techniques work.

It should be noted also that the voting at Windsor did not disclose any success with the techniques of giving gifts or remembrances to industrial and commercial

prospects. If as many as four or five had tried any suggested technique, it was a landslide. Only five had utilized "The Commercial Kitchen Manual," the book "Combustion," and copies of "Trinks" as a donated means of teaching large gas consumers how better to utilize the fuel. Only three had attempted to make distributions of manufacturers catalog literature on a thorough basis. Only four had gone in for the giving of paper weights, ash trays, telephone pads, pencils, calendars, and so forth.

It should be noted that men who voted were more heavily on the industrial side of the picture than on the commercial side, that the bulk of the attendance came from the Atlantic Seaboard and the Midwest, with only a few from Canada, the far West, and the South; that two thirds of the voters represented natural or mixed gas territories and one third represented manufactured gas territories; and that almost two thirds of the voters represented straight gas companies and one third represented combination companies.

For those who attended the meeting the name and company affiliation of at least one member who had tried each of the 50 techniques, was given—the thought being that those interested in investigating the technique could check with an actual previous user. Those who wish to inquire of the Association may obtain the names of such men.

Midwest Industrial Gas Council Meets



Informal group attending Midwest Industrial Gas Council spring meeting: Donald R. Groff (left), Northern Indiana Public Service Co., chairman; Paul Furkert, Gas Appliance Service, Inc.; W. A. Muller and J. R. Woodfill, Northern Indiana Public Service Co.; H. O. Bennett, Surface Combustion Corp.

INFORMATIVE discussions of industrial gas problems featured a two-day spring meeting of the Midwest Industrial Gas Council in the Sky Club of the Leland Hotel in Aurora, Ill., June 3 and 4. Approximately 150 industrial gas engineers from every section of the Middle West attended.

Technical papers occupied the opening day, while the second day was set aside for visits to plants. Following a welcome by C. H. Kallstedt, Western United Gas & Electric Co., Fred H. Tittsworth, American Steel & Wire Co., presented a paper, "Use of

Various Gaseous and Liquid Fuels in the Steel and Wire Mill." Next A. H. Koch, Surface Combustion Corp., Toledo, Ohio, delivered a talk, "Process Operating Costs as a Tool of the Industrial Gas Engineer."

Afternoon papers were as follows: "Investigation of Induction Heating in Relation to Industrial Gas Heating" as conducted by the American Gas Association—George A. Uhlmeier, Iowa-Illinois Gas & Electric Co., Rock Island, Ill.; "Customer Contacts and Relations—During Restriction Period"—Ralph Wenner, The Ohio Fuel Gas Co., and

"Latest Developments in Non-Ferrous Melting Equipment"—E. J. Geittmann, Fisher Furnace Division, Lindberg Engineering Company.

Western United Gas & Electric Company and Public Service Co. of Northern Illinois were joint sponsors of a reception hour and banquet during which a framed scroll containing signatures of council members was presented to Gustav W. Akerlow, a charter member who is retiring from active service in the gas industry.

Howard D. Valentine, The Peoples Gas Light & Coke Co., as feature speaker at the banquet, gave a humorous talk at the banquet, "A Fuel There Was."

Restaurant Operation Program Available

GEORGE L. WENZEL, noted food consultant, has given the American Gas Association an option on his time from January 16 to May 14, 1949. During this period he may be booked by gas companies to present his short course in restaurant operation for their commercial customers and his lecture on food purchasing for housewives. He will be available as follows:

East—January 17 to February 12
Mid-West—February 14 to March 12
West—March 14 to April 9
South—April 11 to May 14.

Mr. Wenzel is booked solid for 1948, including programs for six gas companies in the northeast. The course will be given to hotel, restaurant, and institutional feeding operators under the sponsorship of the gas company, or in some instances, the co-sponsorship of the gas company and local restaurant association.

His first presentation for a gas company will be September 13-18 at Boston under the co-sponsorship of the Massachusetts Restaurant Association and the Boston Consolidated Gas Company. During the first week in November the Hartford, Conn., and Providence, R. I., gas companies will offer their course to their volume cooking operators.

The Philadelphia Gas Works Company has scheduled November 15-19 to have Mr. Wenzel instruct their customers in the most efficient methods of volume cooking operation. During the week of November 21, Mr. Wenzel will go to Atlantic City where the South Jersey Gas Company will arrange for the many hotel and restaurant people in that resort town to attend this series of talks.

December 13, 14 and 15 will find the program being sponsored by The Brooklyn Union Gas Company in cooperation with the local restaurant group. Mr. Wenzel will include at appropriate spots in his talks discussions of the many ways in which modern gas equipment can save fuel and food.

The deadline for arranging to use Mr. Wenzel's services during 1949 is August 1, 1948. Applications for booking the program or requests for additional information should be made to John J. Bourke, director, Commercial Gas Cooking Promotion, A. G. A. headquarters.



RESIDENTIAL GAS SECTION

W. M. JACOBS, Chairman-Nominee

F. W. WILLIAMS, Secretary

Sales Horizon Sketched at Rye



Sol W. Weill, George D. Roper Corp., demonstrating waterless cooking feature of new gas range

RAIN and cloudy skies failed to dampen the enthusiasm of the 150 members of the New York-New Jersey Regional Gas Sales Council convening at the Westchester Country Club, Rye, N. Y., May 24 and 25.

The two-day conference under sponsorship of the Residential Gas Section, American Gas Association, presented a program packed with informative material from the opening remarks by Council Chairman W. B. Hewson to the quiz program conducted by J. J. Deely at the conference dinner. Both the opening and closing speakers represented The Brooklyn Union Gas Company.

In his introductory remarks, Mr. Hewson stressed the importance of the sales department in promoting good public relations for gas companies. Constructive imagination is needed in formulating positive plans for the future, he declared.

N. T. Sellman, vice-president, Westchester Lighting Co., Mt. Vernon, N. Y., welcomed the conferees to Westchester County. Tracing the history of the A. G. A. Testing Laboratories and the "CP" Range Division of G.A.M.A., Mr. Sellman said that standards of gas appli-

ances are now so high that gas utilities can view impartially the question of whether or not to merchandise appliances. Under either direct merchandising or through dealer distribution, there is no need to hesitate in 1948, he said. The gas industry now has the equipment and the know-how to enter into an aggressive campaign of selling.

Sol W. Weill, George D. Roper Corp., Rockford, Ill., proved that action speaks louder than words in selling gas appliances. Many of the simple conveniences incorporated in today's modern appliances which are of great interest to customers may be overlooked by salesmen because of their familiarity. He declared that old gas ranges and the victory models produced right after the war are the gas industry's most serious competitor today.

His company's promotional plans in the field of gas refrigeration were discussed by George S. Jones, vice-president, Servel, Inc., Evansville, Indiana. Mr. Jones also stressed the importance of public relations in the sales picture, both at plant and national levels.

Finer points of salesmanship, particularly in the house-to-house market, were presented by Harry Boyd Brown, president, Good House Stores, Inc. From a wide background of experience, Mr. Brown has gathered many amusing as-

well as serious incidents to point up his presentation.

Recommendations of the nominating committee were unanimously accepted at the opening of the second day of the conference. Walter G. McKie, Rochester Gas & Electric Corp., Rochester, N. Y., was elected chairman for the coming year. George Kelley, Westchester Lighting Co., was appointed vice-chairman, and W. D. Williams, Public Service Electric & Gas Co., Newark, N. J., and Fred Laux, Kings County Lighting Co., Brooklyn, N. Y., were elected to the Sales Council.

Greetings from the Association were tendered at the second day's session by George H. Smith, A. G. A. assistant managing director, and Walter G. McKie ably conducted the program.

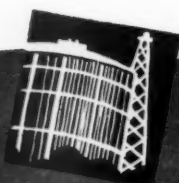
W. D. Williams, chairman, A. G. A. Water Heating Committee, offered some new approaches to the sale of automatic gas water heaters, including the education of homemakers in temperature control of gas appliances, particularly modern, quick recovery gas water heaters.

H. H. Cuthrell, vice-president, A. G. A. and The Brooklyn Union Gas Co., presented some of the problems facing gas utilities today. He told the steps being taken under the A. G. A. Promotion, Advertising and Research Plan to solve

(Continued on page 55)



Speakers who set fast tempo at Rye: (l. to r.) W. B. Hewson, The Brooklyn Union Gas Co., council chairman; W. D. Williams, Public Service Electric & Gas Co., Newark; Walter G. McKie, Rochester Gas & Electric Corp., chairman-elect, and N. T. Sellman, Westchester Lighting Co., Mt. Vernon



TECHNICAL SECTION

A. C. CHERRY, Chairman

W. R. FRASER, Vice-Chairman

A. GORDON KING, Secretary

Production and Chemical Headlines



Conference chairmen: C. C. Russell, Koppers Co., Production Committee (left), and J. G. Sweeney, The Brooklyn Union Gas Co., Chemical Committee



Vice-chairmen: Dr. F. E. Vandaveer, The East Ohio Gas Co., Chemical Committee; H. C. Jones, New England Power Service Co., Production Committee

OPERATING techniques of the gas industry were subjected to a searching analysis at the Joint Production and Chemical Conference sponsored by the Technical Section, American Gas Association, which converted the Berkeley-Carteret Hotel in Asbury Park, N. J., into an engineer's paradise during the three-day period, May 24-26. Approximately 600 delegates took part in the series of meetings which made important contributions to the advancing science of gas manufacture.

The conference served to emphasize the fact that the gas industry is exploring many uncharted fields in a determined effort to break gas production bottlenecks and expand the industry's sphere of usefulness. High on the agenda were such topics as gas production research, availability of raw materials for gas manufacture, plant maintenance, peak load processes, accident prevention, advances in gas chemistry.

Under the able presiding of C. C. Russell, Koppers Co., Inc., chairman, Gas Production Committee, and J. G. Sweeney, The Brooklyn Union Gas Co., chairman, Chemical Committee, a crowded schedule was carried out smoothly. H. C. Jones, New England Power Service Co., Boston,

Mass., vice-chairman, gas production, and Dr. F. E. Vandaveer, The East Ohio Gas Co., Cleveland, Ohio, vice-chairman, chemical, made substantial contributions in supporting roles.

The future of the gas industry is largely in the hands of the technical men, E. H. Werner, president, Jersey Central Power & Light Co., Asbury Park, declared in his address of welcome. In order to meet the tremendous demand for gas house heating and at the same to serve industrial customers, it is imperative that production costs be decreased, Mr. Werner said. Northeastern areas will welcome natural gas but, he warned, companies should not become too dependent upon it for the long-term source of gas supply. Instead they should place responsibility upon the production men's shoulders.

War, peace, world-wide events, and economics have a tremendous effect on the gas industry, H. Carl Wolf, A. G. A. managing director, pointed out, because the economy of America is tied to the gas industry. Ours is the country's sixth largest industry, he said. Producing 13 percent of the heat energy of the country, it has a tremendous responsibility.

"The power to produce is the power of America," he declared, adding that therein



C. E. Utermohle (left), Baltimore, chairman, Water Gas Committee; S. S. Tomkins, New York; W. R. Fraser, Detroit, chairman, Corrosion Committee with A. C. Cherry, chairman, Technical Section



Dr. I. A. Denison, National Bureau of Standards, and H. H. Cuthrell, Brooklyn, A.G.A. vice-president



Between sessions at Asbury Park: Dr. A. Orning, Carnegie Institute, Pittsburgh; R. Van Vliet, Staten Island, N. Y.; Dr. C. W. Wilson, Baltimore



John V. G. Postles (left), Philadelphia, chairman, A.G.A. Committee on Fuels; Dr. A. W. Gauger, State College, Pa.; P. T. Dashiell, Philadelphia

lies the importance of the gas production men. Mr. Wolf called for complete coordination between production and distribution on the one hand and sales on the other. He also urged the delegates to "talk and tell" talk to each other with a free exchange of ideas and tell others what the gas industry has and is doing.

Technical aspects of the Washington changeover from 600 B.t.u. mixed gas to 1,100 B.t.u. straight natural gas were described in a paper prepared by Frank P. Lamb and presented by James R. McQueen, Washington Gas Light Company. This informative paper described segregation and purging of the distribution system, laboratory determination of specifications, appliance adjustments, and publicity.

T. L. Robey, coordinator, A. G. A. Gas Production Research, brought the conference up to date on the status and accomplishments of this vital program. He described briefly the work being done in the 12 projects under active investigation, including five classified as process engineering research, five as product and analytical projects, and two as fundamental research.

Discussing the pilot plant study of hydrocarbon reforming and the project on sulfur resistant catalysts, Mr. Robey said these projects have been responsible for the establishment of throughput capacities for the normally gaseous hydrocarbons



Delegates Fred J. Pfluke (left), Rochester N. Y.; James R. McQueen, Washington; Samuel Weiss, American Coke and Coal Chemicals Institute, Washington, and E. S. Pettyjohn, director, I.G.T., Chicago

such as refinery oil gas, propane and butane, which are several times greater than the original design capacities. The process has now been extended successfully to selected liquid hydrocarbons such as gasoline. Mr. Robey set forth the advantages of the process as follows:

"Obviously the substantial increases in throughput capacity of the catalyst bed are reflected in reduced investment costs. The flexibility of the process with respect to gas composition and the size and capacity of the catalyst units makes this process attractive not only for peak load installations, and particularly at the extremities of overloaded distribution systems, but also for augmenting base load requirements in certain situations."

Mr. Robey concluded his report with a ringing appeal for continued support of an accelerated research program. "The gas industry has reached the point," he declared, "where we have to run fast even to stay where we are."

P. T. Dashiell, chairman of the Gas Production Research Committee for the first three years, and others during the conference supported Mr. Robey in urging the industry to maintain an expanded research program.

Work of the Subcommittee on Stresses and Strains was explained by the chairman, Dr. A. W. Gauger, research director, The Pennsylvania State College, who asked the industry to cooperate in a program to develop more certain knowl-



East meets West: A. B. Lauderbaugh (left), Pittsburgh; F. E. Ceccorelli, New York; E. O. Mattocks, Bartlesville and P. V. Mullins, Amarillo, Texas



W. F. Brown, chairman, Accident Prevention; J. F. Anthes, Brooklyn; J. H. Wolfe, Baltimore; T. L. Robey, coordinator, A.G.A. Gas Production Research





Carbonization & Coke Luncheon: Elliott Preston, Pittsburgh; H. K. Merker, Brooklyn, chairman; J. M. Daschbach, New York; W. C. Wardner, New Haven



Chemistry in Gas Industry Luncheon: J. G. Sweeney, Chemical chairman; Gilbert McGurl, luncheon chairman; E. M. Bliss and Benjamin Miller

edge about the reaction of coal when heated.

Louis Shnidman, Rochester Gas and Electric Corp., chairman, Subcommittee on "Gaseous Fuels," brought the first afternoon session to a close with a description of the comprehensive "Gaseous Fuels" book which he edited and which is now receiving widespread attention in the technical world.

A symposium on raw materials for gas fuel which held a packed audience through a long evening session brought out a large amount of valuable information on the current supply of coal, coke, oil, and LP-gas. Following introductory remarks by J. V. Postles, The Philadelphia Gas Works Co., as chairman, A. G. A. Committee on Fuels, Dr. H. J. Rose, director of research and vice-president, Bituminous Coal Research, Inc., Pittsburgh, spoke on availability of coal for gas manufacture.

Summarizing replies received from 27 leading producers of "commercial" gas and coking coal, Mr. Rose said the coal industry "is confident that an adequate supply of gas and coking coals of acceptable purity will be commercially available for many years to come." Some producers expect a trend toward increased use of high- and medium-volatile coals, he reported.

"Increased attention is being given to washing and drying special-purpose coals to provide maximum quality and uniformity," Mr. Rose continued. New gasifi-

cation and gas purification processes now undergoing intensive study may broaden the specifications for gas industry coals. He estimated that the gas utility industry consumes less than two percent of the total coal mined.

Vigorous action to conserve coking coals was urged by Samuel Weiss, executive secretary, American Coke and Coal Chemicals Institute, Washington, D. C., who gave a detailed analysis of the current coke situation. The shortage of good coking coals, he said, is already accentuating shortages in other sections of the economy. For the period from 1944 to the end of 1948, Mr. Weiss estimated a net gain in coke-making capacity of but half of the capacity of all new ovens built during that time.

From the supply side, Mr. Weiss recommended that large consumers of coke should maintain their coke-making facilities and, despite high construction costs, consider carefully the advantage of insuring their position as to coke supplies.

"There is nothing on the horizon now to indicate any ultimate gain by postponing necessary oven building," he said.

Despite an estimated record oil supply for 1948, it will be nip and tuck as to whether all demands are satisfactorily met, according to D. L. Barrett, manager, bulk products division, Esso Standard Oil Company Domestic oil supply is up 7.5 percent from 1947, imports are up 9.6 percent,

and total supply is up 7.6 percent, he said. This estimated increase in new oil supply for 1948 compares with an increase in actual demand during 1947 of 10.9 percent, and an average increase in demand per year over the past 14 years of between five and six percent.

Refinery capacity is available to run the total available crude supply, although the balance is a close one, Mr. Barrett declared. "A number of new refinery installations will be completed towards the end of the year, however, which should prevent any bottleneck in refining capacity this winter. Tanker transportation should be sufficient during 1948 to move all available supplies."

If new refining equipment is not completed, it will mainly affect distillate fuel products, he said. An abnormal yield increase in distillate fuels can only come at the expense of some other products, Mr. Barrett maintained, and industry's plans are to make it largely at the expense of residual fuel.

Beyond the immediate horizon Mr. Barrett sees vast new supplies of crude oil in the world awaiting development. In addition, the United States has enormous potential synthetic oil reserves, he noted.

Winding up the fuel symposium, H. Emerson Thomas, Westfield, N. J., predicted that sufficient additional quantities of LP-gas will be forthcoming to keep up with new sales but that there will still



Water Gas Operation Luncheon: Robert S. Emanuel (left), Harrison, N. J.; O. H. Smith, New York, luncheon chairman; R. B. Paquette, Chicago, and C. E. Utermohle, Jr., Baltimore, chairman, A.G.A. Water Gas Committee



Joint LP Gas and High B.t.u. Gas Luncheon: W. H. Isaacs (left), Chicago; J. P. Stephens, Cincinnati; G. J. McKinnon, chairman, High B.t.u. Gas; H. Emerson Thomas, chairman, LP Gas, and C. L. Hulswit, Spring Valley, N. Y.

be a tight supply this winter, with conditions improving before the winter of 1949-1950. He urged the gas industry to provide sufficient storage to carry through unexpected winter needs and help the producer solve the peak load problem.

Chemists and production men met separately Tuesday morning in parallel sessions. The chemical meeting opened with a description of methods for sampling and analyzing LP-gases by E. O. Mattocks, Phillips Petroleum Company.

Generally, material received in a tank car can be considered as having been agitated sufficiently to require only one sample, he stated. Samples from stationary above-ground storage should be a composite of samples obtained from various locations in the container. They may be secured from rotary gauges or possibly from slip tube gauges if they extend close to the bottom of the container. A great variety of methods for analyzing LP-gas were discussed in Mr. Mattocks' informative presentation which was illustrated by slides.

The circulatory process for reviving iron oxide in place, used at the Harrison, N. J. Gas Works, Public Service Electric & Gas Co., was described by John B. Di Rienzo of that utility. With high load conditions, where trace removal of hydrogen sulfide following liquid purification is necessary, every factor such as pH and humidity control, which tends to increase iron oxide activity must be given careful attention, he said. "Revivification in situ is a suitable means for reactivating and reconditioning the oxide sponge for further efficient trace removal and makes it possible to accumulate greater amounts of sulfur per bushel of oxide sponge before the purifying medium is removed from the box," Mr. Di Rienzo concluded.

H. W. Wainwright presented a paper prepared by himself, A. E. Sands, M. A. Grafius, and M. W. Wilson, of the Synthesis Gas Production Laboratory, U. S. Bureau of Mines, Morgantown, W. Va., discussing the methylene blue method for the determination of low concentrations of hydrogen sulfide in gas.

Prospective benefits from removing excess nitrogen from natural gas were analyzed in a paper prepared by P. V. Mullins and R. W. Wilson, Bureau of Mines, Amarillo, presented by the former, summarizing progress to date on a cooperative A. G. A. research project. The authors discussed physical effects and economic benefits of nitrogen removal under typical conditions and gave examples. The cost figures and benefits cited of transporting nitrogen-free gas emphasize the desirability of developing suitable industrial means for large-scale nitrogen removal

operations in connection with gas transmission.

A comprehensive and valuable report on methods of boiler water conditioning and chemical cleaning of boilers was presented by S. S. Tomkins, Consolidated Edison Co. of New York, Inc. The importance of adequate cleaning of the interior surfaces of a boiler was stressed by Mr. Tomkins.

"It is now generally realized," he said, "that even with adequate chemical conditioning of the boiler water, it is improbable that the boiler can be kept clean and efficient by blowing down, or in some cases by manual cleaning such as turbinizing."

Periodical washing of boilers with inhibited acid was recommended. Average costs of acid washing are about the same as mechanical cleaning, according to the author, and usually a better job is obtained with considerable saving in man-hours and outage time. He described a

fundamental coke plant practice offer a wide range of possibilities, according to Mr. Wardner. "Certain additive materials such as oil may be applied to the coal with good results but this has its limitations. So-called residuum oils often used for this purpose require more B.t.u. per pound to carbonize than does the coal with which it is heated."

Results of a study of maintenance and preventive maintenance practices affecting gas machines and auxiliary equipment in a number of companies were presented in a joint paper by Charles A. Gallagher, Long Island Lighting Co., and S. A. Petrino, Kings County Lighting Company. The authors deplored the tendency of some operators to look upon maintenance as a necessary evil and recommended strict adherence to a systematic well-thought-out policy. Of special interest was their detailed analysis of the programs of individual companies.

Pinch-hitting for Frank P. Lamb,



Edward G. Boyer (left), Philadelphia, chairman, A.G.A. Gas Production Research Committee, and speakers, Dr. H. J. Rose, Bituminous Coal Research, Inc., Pittsburgh, and R. B. Paquette, Chicago

procedure applied by one company in 76 cleanings of high pressure boilers and 190 cleanings of low pressure boilers.

Opening the gas production session, Walter C. Wardner, superintendent, The Connecticut Coke Co., New Haven, reported on various methods for increasing gas production from coke oven plants which are in use in this country, Canada, and England. Also presented was a tabular summary showing the frequency of use of these methods at a number of plants.

In controlling basic coke plant operation, Mr. Wardner said, two possibilities exist; either adjustment of operating schedules or increased efficiency of current operation. Varying the rates of operation, however, in his opinion offers no solution when the plant is already being operated at maximum capacity consistent with safety and long oven life. Another possibility lies in modifying coal mixture, he stated.

Varying operations by alterations to

Washington Gas Light Co., E. M. Perry presented Mr. Lamb's paper on "Production of High B.t.u. Oil Gas in a Standard Water Gas Set." The paper gave operating results on the high B.t.u. oil gas process using oil firing which was adopted to supplement the supply of natural gas on peak load days. The substitute gas required was one that could be mixed with natural gas in proportions up to 50 percent of the final mixture without affecting appliance performance and one that would give reasonable performance when mixed with natural gas in greater proportions.

At one point due to an interruption in the natural gas supply nearly 100 percent oil gas was sent out for several hours. Commenting on this, the author said that distribution service orders in the area were three times normal on the largest sendout day of the year and were predominantly leak orders due to the different odor of the oil gas as compared with the odorized natural gas. When a mixture

of 50 percent oil gas or less and natural gas was distributed, service orders were about normal. The large volume of tar produced by the oil gas process was stored in holder tanks and subsequently burned as boiler fuel.

J. D. Davis, U.S. Bureau of Mines, Washington, delivered a report prepared jointly with B. W. Naugle, J. T. McCartney and J. E. Wilson, of the Bureau's staff, covering measurement of coking pressure in a small laboratory oven. A five-inch oven similar to a large vertical oven, and electrically-heated from both sides, was constructed to investigate expansion pressures on a small scale. Results obtained with this oven justified these conclusions, according to the authors:

Conclusions Justified

1. Reduction of a coke oven to laboratory size tends to produce a higher wall pressure, part of which is caused by the higher gas pressure developed in the narrower oven.

2. The magnitude of the pressure seems dependent on such factors as rate of rise of center temperature, thickness of coke from the oven wall to the plastic layers, amount of the charge plastic at one time, formation of non-reproducible plastic envelopes in the free top tests, amount of vertical expansion, and unavoidable variable cooling in the confined top-cooled tests, whereas duplication of results seems dependent only on the latter three.

3. The results are empirical, and it would be difficult to predict from them the pressure a sample would develop in the large vertical oven or coke oven.

A variety of information which ran the gamut of the gas industry's operating experiences was exchanged at the four well-attended luncheon conferences held Tuesday afternoon. These off-the-record meetings were divided as follows:

Carbonization and Coke—H. K. Merker, The Brooklyn Union Gas Co., chairman; Maxwell McCreery, Eastern Gas & Fuel Associates, Everett, Mass., alternate chairman.

Chemistry in Industry—Gilbert McGurl, Koppers Co., Inc., Kearny, chairman.

Joint LP-Gas and High B.t.u. Gas—H. Emerson Thomas, Westfield, N. J., chairman, LP-Gas; G. J. McKinnon, Michigan Consolidated Gas Co., Detroit, chairman, High B.t.u. Gas.

Water Gas Operation—Oliver Smith, Consolidated Edison Co. of New York, Inc., chairman; R. B. Paquette, The Peoples Gas Light and Coke Co., Chicago, alternate chairman.

The Dayton-Faber oxygen oil-gas process was described in a paper by W. F. Faber presented at the Joint LP-Gas and High B.t.u. Gas meeting.

An interesting and educational color film demonstrating the extinguishment of propane, gasoline, and benzol fires under

high pressure was shown by the Anslu Chemical Company at the beginning of the Wednesday general session.

Modern principles of accident prevention were expounded by W. F. Brown, safety director, Consolidated Edison Co. of New York, Inc., and chairman, A. G. A. Accident Prevention Committee, who emphasized that enlightened management looks upon safety work as "not only humane, but progressive and profitable." After citing accident experience, costs, safety training, and policies, Mr. Brown gave this cogent definition of safety:

"Finally, when we analyze the term of 'Safety' we find more than just security or freedom from danger! It means an attempt to prevent the occurrence of wholly unnecessary accidents whether they result in injury or not. It means an honest and intelligent effort to curb and minimize recklessness and carelessness. It stands for the establishment of order in place of chaos in all walks of life. It stands for the defeat of fatalism with its theme 'accidents are bound to happen' by substituting intelligent and prudent thinking in place of such blind pagan reasoning. It is emblematic of an economic, patriotic and humanitarian work being practiced by decent people everywhere."

At this point on the program, W. R. Fraser, Michigan Consolidated Gas Co., Detroit, described the organization and objectives of the Corrosion Committee of which he is chairman. He urged the in-

dustry to cooperate in the work of this newly-formed group.

Chemical aspects of underground corrosion and corrosion prevention methods were analyzed by I. A. Denison, chief, Underground Corrosion Section, National Bureau of Standards, Washington, D. C. Factors which affect the behavior of a variety of ferrous and nonferrous metals and alloys underground were considered with respect to both environment and composition of material.

"Consideration of all of the materials which have been exposed to soil corrosion by the National Bureau of Standards," Mr. Denison said, "shows that the factor which induces corrosion most generally is deficient aeration. The most serious corrosion of ferrous metals, copper and copper alloys, lead and zinc was observed in poorly-aerated soils. High concentrations of soluble salts are very corrosive to all metals except lead, but only when accompanied by deficient aeration."

Chromium and nickel in alloy steels improve their resistance to underground corrosion generally, the author stated, but the high contents of chromium stainless steels may so concentrate corrosion in local areas that deep pitting results. However, steels containing eight percent or more of nickel in addition to 18 percent of chromium have resisted corrosion in all soils for the maximum exposure period of the field tests. Zinc is effective in protecting iron and steel both as a metallic coat-

Fraser Appointed Section Vice-Chairman



W. R. Fraser

WILLIAM R. FRASER, experimental engineer in the Detroit district, Michigan Consolidated Gas Co., has been appointed vice-chairman of the Technical Section, American Gas Association, to fill the unexpired term of S. J. Modzikowski, chemical testing engineer, The Peoples Gas

Light and Coke Co., Chicago, who has resigned due to illness. The appointment was made May 25, by A. C. Cherry, Cincinnati, Technical Section chairman, following the recommendation of the Nominating Committee and unanimous approval of the Section's Managing and Executive Committees. Mr. Fraser's term of office expires in October 1948.

Mr. Fraser's selection as vice-chairman follows a long period of active work in Association affairs. A member of the Technical

Section's Managing Committee and chairman of the Corrosion Committee, he is also active on the Gas Production Research and Domestic Gas Research Advisory Committees, Domestic Gas Appliance Installation and Improvement Committees, and past chairman of the Mixed Gas Research Group. In addition, he is a member of the Liquefied Petroleum Code Committee and the Natural Gas Research Technical Advisory Committee.

Outside the A. G. A., Mr. Fraser is a member of the National Association of Corrosion Engineers and the D-2 and D-3 Committees, American Society for Testing Materials.

Mr. Fraser entered Worcester Polytechnic Institute in 1916. After Army service with Chemical Warfare Divisions during World War I, he transferred to the University of Michigan and graduated in 1921 with a B.S. degree in chemical engineering.

He joined the gas industry in 1922, working his way through the laboratories and the manufacturing and distribution operations division of the former Detroit City Gas Company. When the latter became the Detroit district, Michigan Consolidated Gas Co., Mr. Fraser was appointed experimental engineer.

ing and as an anode for cathodic protection, Mr. Denison reported.

Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Co., and vice-president, A. G. A., made a stirring plea for young men with dynamic ideas to take hold of the industry's problems and meet the challenge of an expanding economy. He said the future of the industry depends upon improving methods and equipment, not only to take care of the house heating load but to meet all other demands for gas service. He urged more support for the A. G. A. research program and called for concentration on those projects which would give early relief to the industry.

A progress report on A. G. A. mixed gas research by J. F. Anthes, The Brooklyn Union Gas Co., chairman of the supervising committee, was the concluding feature of the morning session. Mr. Anthes gave a comprehensive picture of the background and results to date of this work which is now in its third phase, namely, experimental work with appliances and test burners.

Reporting for the Subcommittee on Use of Oxygen in Gas Manufacture, L. L. Newman, U. S. Bureau of Mines, chairman, summarized replies from oxygen plant manufacturers which indicated "that enormous strides have been made in the progress of oxygen plant construction and that some commercial plants will be completed within the next few months."

There is considerable concern, Mr. Newman said, in steel plant operations over the size of the load factor under which tonnage-oxygen plants will be operated in view of the nature of the uses made of the oxygen. In the case of gas plant operation in which gas produced by means of oxygen would constitute the base load, Mr. Newman declared that "the promise of low cost oxygen at last appears to be fulfilled." He advocated intensification of A. G. A. fundamental and applied research in the utilization of oxygen for gas manufacture.

Equipment and processes for manufacturing higher B.t.u. gases were outlined by J. P. Stephens, The Cincinnati Gas & Electric Co., who presented the results of a survey of a number of companies. Mr. Stephens also contributed a description of the Hall Oil Gas Process now being tested in Baltimore under sponsorship of A. G. A. Gas Production Research Committee.

John W. Carroll, Philadelphia Electric Co., Chester, Pa., and Richard B. Paquette, The Peoples Gas Light and Coke Co., Chicago, jointly reviewed progress in reforming of hydrocarbons in water gas sets. Mr. Carroll reported that reforming of refinery oil gas, LP-gases, and oil in

CATALYTIC REFORMING

(Continued from page 11)

particularly if the hourly load factor is high.

During the tests at Riverhead there was no evidence of carbon deposition and it is believed that production at the rates shown could continue for a prolonged period before burn-out would become necessary.

The amount of CH_4 in the reformed gas is a good indication of probable carbon deposition; burn-out should not be necessary if this does not exceed three to four percent.

Main object of the tests reported was to determine the gas-making capacity of the units. It is interesting to note, however, that the most economical operation was attained in test run B, because of the larger amount of gas produced by the water-gas reaction.

The only feed-stock thus far used at Riverhead is propane, but tests will be made with butane before the coming winter. Tests completed under A. G. A. Gas Production Research Project CPR-1C using butane at the Chester pilot plant, indicate that higher production rates are possible with this feed-stock. Research work at Chester is continuing with various other hydrocarbon feed-stocks and much valuable information is being obtained. Surface Combustion Corporation has further developed the process for operation with a feed-

water gas sets provides a flexible, efficient method of producing a gas for mixing with natural gas to replace water gas or coke oven gas, or for producing an intermediate (800 B.t.u.) gas. Further, he said, "reforming results in high set capacity, low manpower and reliable safe operation with easily stored materials."

Mr. Paquette stated that the long-continued production of reformed natural gas has a deleterious effect on checker and liner brick, probably due to strongly reducing gases in the absence of oil vapors. Provision should be made for periodic replacement, he said.

Work on the catalytic reforming of hydrocarbons, sponsored by the A. G. A. Gas Production Research Committee at the Institute of Gas Technology, and corollary developments were reviewed by Charles H. Riesz of the Institute staff. Results of an initial series of tests on the catalytic conversion of propane and other gaseous feeds into carrier gases suitable

stock of natural gasoline, and plants of this type are now being built for the Consumers Gas Co., Reading, Pa., and Harrisburg Gas Co., Harrisburg.

The catalytic cracking process is ideally suited for gas production for peak loads:

1. It produces a perfectly matched gas which can be used to supply a 100 percent replacement gas.

2. If located at a point remote from the base load plant it can completely take over the supply of gas to the remote area and relieve the transmission system of that supply.

3. Being a continuous process with great flexibility in production rate, it requires no storage holder and can feed directly into the distribution system to satisfy the load requirements.

4. Automatic control makes possible operation with a minimum of labor.

5. Purification of gas is not necessary.

6. Operation of the plant produces no smoke or dust.

7. Capital investment is comparatively low.

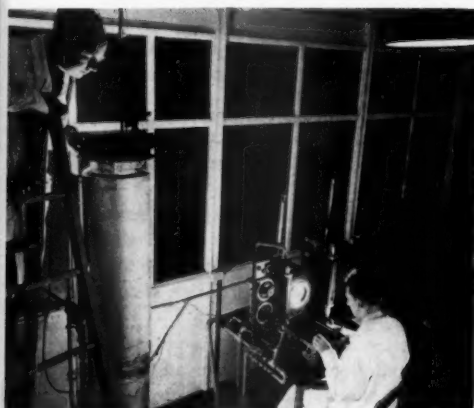
8. At the time of writing, feed-stocks of natural gas, propane, butane, refinery gas and natural gasoline may be used. Research now under way will undoubtedly result in other feed-stocks being added to this list. If a low cost feed-stock can be found this type of plant may well be the base load plant of tomorrow.

for peak load purposes were reported previously in the A. G. A. MONTHLY. Mr. Riesz added to this data and declared that catalytic gasification has become a practical peak load gas generating process. Further research is needed, he pointed out, to explore application of the process to feeds other than propane and butane, to the generation of gas under pressure and to the development of more active and possibly sulfur resistant catalysts.

Actual operating results of the first full-scale catalytic cracking plant in the country to augment peak load gas production were presented by S. W. Horsfield, Long Island Lighting Co., Garden City. These results are given in Mr. Horsfield's article starting on page 9 of this issue.

Without exception, all sessions of the 1948 Joint Production and Chemical Committee Conference were marked by large attendance and provoked an unusual amount of discussion.

Research in Heat Transfer Progressing



Unique instrumentation techniques are employed in connection with recording of gas house heating furnace heat transfer data at the Laboratories. Temperatures along inside of experimental heat exchanger are recorded on point-to-point basis

PUBLICATION of a comprehensive review of research efforts to develop fundamental heat transfer data has been authorized by the Technical Advisory Group for Central Gas Space Heating Research. To be published as an interim report on progress to date, it will cover the work that has been done over the years as well as the current project now in progress at the American Gas Association Testing Laboratories. This represents a particularly important and outstanding study from the standpoint of long-range fundamental research.

Objective of the study is to seek a broader scientific approach to the design of central gas heating equipment. Little data of a tech-

nical nature on application of laws governing heat transfer to heating elements exposed to direct radiation of gas flames are available at present. Engineers may draw on experience, but recognized technical references and handbooks do not exist to show how gas fuels and materials of construction may be utilized most efficiently.

It is intended that eventually relationships will be developed between all design variables likely to be encountered in practice. They will be set up to apply to air, water, and oil-backed surfaces, and will also account for all expected variations in burner design, fuel gases used, manner of aeration, shapes and positions of surfaces, and possible types of baffling which may be employed.

During the course of the present investigation, special small high velocity thermocouples were constructed, capable of measuring accurately temperature of flue gases and of flames up to the temperature limit of the thermocouple alloys employed. This phase of the investigation has developed instrumentation techniques unusual in their application and of special interest to engineers in the gas appliance field.

To date, heat transfer coefficients for both the inside and outside surfaces of an experimental heating element have been computed under conditions of different heat inputs as a variable. The data have permitted both theoretical and empirical correlations to be made and heat transfer coefficients to be computed on a point-to-point basis inside the heat exchanger. Equations for theoretical and empirical relationships developed correlate flue gas, cooling air, and heating element surface temperatures as well as heat transfer rates. These relationships have been applied so far only to the cooling zone, in this instance that portion of the heat exchanger which can see the flame but is not directly adjacent to it.

mainly to gas plant operators who must supply an existing distribution system serving existing appliances.

The new domestic gas research project is concerned with the same over-all need to meet peak loads by the utilization of supplemental gases. However, it will approach the problem from the standpoint of charting fundamentals of burner design for satisfactory operation over the widest possible range of gases without readjustment.

A rather wide variation noted in the performance of critical burners brought in from the field for the mixed gas study brought about the suggestion that the data already recorded could be analyzed usefully from a design standpoint. It appears that the so-called critical burners can be further subdivided into several other classifications. Such groupings would include those burners that could be adjusted over a wide range of base gases, but once adjusted have little tolerance for other gases; and burners that did not necessarily show such a wide range of adjustment for base gases, but when once

adjusted have greater tolerance for other gases. The new study will analyze the design factors which cause such differences, looking ultimately toward burners which will accommodate the widest possible fluctuation in types of gases, without readjustment.

I.G.T. to Offer Home Study Courses

THE Institute of Gas Technology, Chicago, has announced plans to offer home study courses on the gas industry. Three courses, one on manufactured gas, another on natural gas, including transmission, and a third on distribution and utilization, will be given.

The courses have been requested by many individuals and companies as well as by the Personnel Committee, American Gas Association, which will render encouragement, advice and assistance. They will be offered as soon as possible after preparation of the texts and the necessary reviewing and approval by advisory committees of the Association.

Now in its seventh year, the Institute is well-qualified to present such courses. It was founded for the purpose of advancing the technology of gaseous fuels and is supported by gas companies of all types. Among the Institute's services are the conduct of research, the training of students at the graduate level in gas technology and the preparation of "Gas Abstracts," published monthly.

Every effort will be made to present the subject matter of the home study courses in a clear, concise manner. The level of the work will be such that an engineering graduate should experience no difficulty in comprehending it. In this way, cadet engineers may greatly accelerate the process of becoming acquainted with the nature and problems of the industry. Likewise, more experienced men may benefit by increasing the breadth of their information and reviewing ground previously covered.

Non-engineering personnel will find the discussions invaluable for gaining an appreciation of the operations of their companies, although they will not, in general, be able to follow the mathematical derivations of scientific laws. For all, these texts should prove to be useful references.

New Warranty Policy for Gas Air Conditioners

ANNOUNCEMENT of a five-year protection plan for Servel all-year air conditioners has been made by J. A. Gilbreath, sales manager, air conditioning division.

The new warranty policy will cover all the company's "C" model air conditioners and will be retroactive to cover all units manufactured and sold since April 1, 1946.

Under the new policy, Servel warrants the air conditioner to be free from defects in material or workmanship under normal use and service for five years from the date of original installation, provided proper evidence of installation is reported at the factory. Servel's

Principles of Burner Flexibility Studied

ANEW American Gas Association domestic research project, seeking to delineate gas burner design fundamentals which will produce the greatest operating flexibility without readjustment has been started at the A. G. A. Testing Laboratories.

This project, DGR-13-B, sponsored by the Committee on Domestic Gas Research, supplements from the utilization standpoint work now being done in mixed gases and will utilize certain technical information and equipment already available in connection with the mixed gas research.

The present mixed gas research project sponsored by the Association's Gas Production Research Committee, seeks to define the proportion of various supplemental gases which may be added to base load manufactured gases. This study is being conducted with representative critical burners selected from the field and is designed to be of value

obligation under this warranty shall be limited to repairing or replacing any part which, through examination at the factory shall be disclosed as defective. Transportation to and from the factory will be allowed on shipments of parts for replacement and return of defective ones. Local delivery costs and replacement labor are not included.

All parts of the conditioner are covered by this protection plan except deterioration of exterior finish due to damage or normal wear, or replacement of filters, belts and fuses. In addition, fan motors and bearings will continue to be protected for one year only.

The one-year warranty on evaporative water coolers remains unchanged.

1949 Promotional Gas Calendars Previewed

LAATEST edition of "CALENDorPAD," an attractive three-color calendar with all 12 months exposed, is now available. Approximately nine by 14 inches, the calendar has a thick pad on the front for daily shopping lists and a place for dates on the back.

Prices for different amounts (F.O.B. New York City) are as follows: over 5,000—9½ cents each; 1,000-5,000—ten cents each; 500-1,000—12½ cents; under 500—15 dollars per hundred.

Orders should be addressed to the Eldredge Co., 275 Morgan Avenue, Brooklyn 6, New York. Companies ordering should submit exact company imprint desired in two or three lines. Matching envelopes are also available, not imprinted, at \$12.50 per thousand.



Free samples of this 1949 three-color "CALENDorPAD" are available to interested gas companies.

Quarter Million See A.G.A. Range Film



Shooting a scene in a New Freedom Gas Kitchen for the movie "Winning Seals of Approval"

A PAR activity **I**NCOMPLETE reports to April 30 show that during its first school year of showings, the American Gas Association's full-color sound motion picture, "Winning Seals of Approval," has been screened in 2,871 classes before a total audience of 247,856 students.

The film is based on the numerous tests a domestic gas range must pass in the A. G. A. Laboratories before it can be awarded the Laboratories' Approval Seal, and additional requirements the range must meet before it can qualify as a model built to "CP" standards.

Delectable foods cooked on various gas ranges are filmed in full color. Two complete New Freedom Gas Kitchens are also shown. The picture has been screened primarily before home economics classes, but an additional benefit was realized when science teachers began requesting it for showing to classes as an example of testing laboratories work.

School showings are booked through Modern Talking Picture Service, Inc., which maintains offices in 26 cities. Booking notices for each showing are sent to the A. G. A. Promotion Bureau which has arranged a special service for companies requesting it.

For gas companies which prefer to work with the schools whenever the film is shown, the Promotion Bureau issues the booking notices telling time and place of scheduled showing. The local gas company then sends its home service representative, or other employee, to aid the teacher in whatever way she requests. Cooking demonstrations, special lectures, and similar activities are included.

Accompanying the film for school showings is a teacher's guide with background material on the gas industry and gas ranges.

In addition to the school showings arranged through the booking service, 58 prints have been purchased by individual gas companies for showing in their territories before luncheon groups, parent-teachers, church organizations, and others. Additional prints are still available from the A. G. A. Promotion Bureau at \$95 each.

Following is a tabulation of bookings and showings of the film by states:

State	No. of Bookings	No. of Times Shown	Total Audience
Alabama	15	24	2,127
Arizona	5	5	525
Arkansas	2	4	92
California	89	174	11,768
Colorado	13	36	1,747
Connecticut	5	7	719
Delaware	3	7	737
District of Columbia	2	2	358
Florida	22	55	2,081
Georgia	30	54	2,308
Idaho	8	9	1,788
Illinois	138	211	17,006
Indiana	94	163	8,404
Iowa	47	86	3,803
Kansas	30	54	2,790
Kentucky	18	30	2,503
Louisiana	21	34	2,073
Maine	6	9	359
Maryland	17	37	1,713
Massachusetts	40	71	3,545
Michigan	42	89	4,331
Minnesota	67	115	6,457
Mississippi	16	26	2,505
Missouri	46	68	3,539
Montana	7	10	490
Nebraska	27	58	2,010
Nevada	2	6	83
New Hampshire	7	7	487
New Jersey	22	45	2,142
New Mexico	2	2	236
New York	76	146	12,587
North Carolina	36	46	5,480
North Dakota	11	13	929
Ohio	66	120	5,222
Oklahoma	17	29	4,514
Oregon	7	12	337
Pennsylvania	157	371	29,531
Rhode Island	2	3	164
South Carolina	10	18	2,352
South Dakota	12	17	835
Tennessee	24	56	3,113
Texas	270	283	76,663
Utah	6	19	1,436
Vermont	3	5	113
Virginia	16	29	1,778
Washington	18	23	1,513
West Virginia	21	39	4,619
Wisconsin	89	137	7,879
Wyoming	3	7	267
GRAND TOTALS	1,687	2,871	247,856

Iowa Gets "House of Magic Flame"



"This is the realization of a dream I have had for many years," said Carl M. Stephens, president, Council Bluffs Gas Co., Iowa, as he inspected the company's new building. First of the three floors (see above) contains 4,000 square feet of space devoted to the display of modern gas appliances



Modern demonstration kitchen and auditorium (above) in the basement of the "House of Magic Flame" is used by the home economics service department headed by Mrs. Jane Ashby and can accommodate up to 400 persons. Throughout its three floors, the new building maintains colors and furnishings designed to create a feeling of ease and comfort for the company, its employees and its customers

Notes from F.P.C.

● The Ohio Fuel Gas Co., Columbus, has received permission to construct facilities to replace existing lines in order to provide increased natural gas transmission capacity for the Marion and Lima, Ohio markets. Cost of the project has been estimated at \$2,986,250 but this sum may be reduced by salvage of the lines to be replaced.

● Panhandle Eastern Pipe Line Co., Kansas City, Mo., has been authorized to construct and operate additional natural gas transmission facilities which will increase the delivery capacity of its system by 102 million cubic feet of gas daily. Cost of the facilities has been estimated at \$27,021,000, or \$26,615,000 if an alternate plan is used.

● Background data and discussion of natural gas industry operations, interstate aspects of which are subject to regulation by the F.P.C., are contained in the Commission's 1947 annual report.

Regarding the natural gas situation, the Commission stated: "The growth of demand for natural gas is reflected in the estimated cost of \$666,700,000 for new interstate facilities proposed in the 12 months ended June 30, 1947, as compared with \$480 million for the corresponding period in 1946 and \$164,100,000 for 1945." During the fiscal year, the commission issued 132 certificates authorizing new natural gas facilities valued at \$271,500,000.

Despite a strong upward trend in the general price level during the year, the Commission reported that annual reductions of approximately \$3,200,000 in interstate natural gas rates and \$1,970,000 in interstate electric rates were either required or accepted voluntarily.

Copies of the report may be obtained from the Federal Power Commission, Washington 25, D. C. at 35 cents each. Order number of the report is F.P.C.-A-34.

● William S. Tarver, Washington, D. C., has been appointed an assistant general counsel, F.P.C. Mr. Tarver succeeds former Assistant General Counsel Charles E. McGee, who will have general supervision over all legal work of the Commission in connection with the Natural Gas Act.

● Applications of Texas Eastern Transmission Corp., City Gas Company of N. J., and Revere Natural Gas Co., will be heard by the F.P.C. at a consolidated hearing opening July 12, in Washington, D. C.

Texas Eastern, operator of the Big and Little Inch lines, is seeking authorization to install an additional 86,150 horsepower in compressor stations on the lines and thus increase the delivery capacity of its system from 433 million to 508 million cubic feet per day.

Both City Gas Company of New Jersey and Revere Natural Gas Co., Jefferson, Pa., have asked the commission to require that Texas Eastern establish physical connection with their facilities and sell gas to them.

● Alabama-Tennessee Natural Gas Company has received a certificate of public convenience and necessity, subject to F.P.C. review, to construct and operate natural gas transmission facilities to serve markets in northern Alabama and northern Mississippi.

The projected line would have a capacity of 30,179,000 cubic feet of gas daily at point of delivery from Tennessee Gas Transmission Company's main line. Cost is estimated at \$2,900,000.

● F.P.C. general rules, including rules of practice and procedure, are now available in one codified volume—a loose-leaf reprint of all rules currently constituting Chapter I of Title 18, Code of Federal Regulations. Copies of the new publication may be obtained only from the Division of Publications, Federal Power Commission, Washington 25, D. C. The price is \$2.00 and the order number F.P.C.-A-32.

● El Paso Natural Gas Co., El Paso, Texas, has requested authority to construct and operate additional natural gas transmission facilities which will increase the daily delivery capacity of the company's system by 180 million cubic feet.

Of the additional capacity, 80 million cubic feet per day is intended for delivery to distribution companies in Arizona, New Mexico, and west Texas, and 100 million cubic feet per day to the Southern California Gas Company and the Southern Counties Gas Company serving southern California.

Total anticipated cost of the proposed facilities, with a provision for contingencies, is estimated by the company at \$56 million.

Marked Increase in West Coast Gas Sales

CONSIDERABLE increases in sales of both natural and manufactured gas during 1947 are reported for the three Pacific Coast states of California, Oregon and Washington, according to the Pacific Coast Gas Association.

Manufactured gas sales rose 7.5 percent over 1946, and natural gas showed a gain of 16.6 over a year ago. A total of 2,375,000 gas customers are now being served on the Pacific Coast, 195,000 of which are users of manufactured gas.

A. G. A. Midwest Personnel Conference Well-Attended

CURRENT personnel developments useful in measuring individual company activities were discussed at the recent Midwest Personnel Conference in Kansas City, Mo., which was sponsored by the American Gas Association and attended by 30 gas industry personnel executives. Vernon Myers, Sioux City Gas & Electric Co., Sioux City, Ia., was chairman.

Harold T. Himes, regional supervisor, Aetna Life Insurance Co., the guest speaker, described considerations necessary to the adoption of pension plans. During the ensuing discussion heavy emphasis was placed upon problems connected with providing security for employees.

Ranges of wage rates among the companies represented were reported for laborer, fireman, gas maker, engineer operator, oiler, mechanic, welder, fitter, service man, truck driver and meter reader. Kurwin R. Boyes, secretary, A. G. A., reviewed industrial relations activities and asked for suggestions from those present as to ways to increase the usefulness of these activities and to achieve general coordination of this effort.

Arrangements for the meeting were made by H. H. Duff, personnel director, Panhandle Eastern Pipe Line Co., Kansas City, Mo., vice-chairman of the group. Representatives of all gas companies in the Midwest area will be welcome at future meetings and can be placed on the mailing list by addressing the conference secretary, Roy L. Thomas, Colorado Interstate Gas Co., Colorado Springs, Colorado.

Gas Industry's Steel Requirements Published

THE current shortage of steel for pipe is shown as a serious threat to vital services supplied by the gas industry, according to the American Gas Association's new 27-page illustrated report on the steel needs of 1,120 gas companies which serve more than 21 million customers.

The report shows how without steel, operations of more than 1,396,000 hospitals and commercial establishments would be hampered seriously. Construction of homes and other dwelling units cannot solve the housing problem, the report declares, unless

gas can be made available to those projects.

Published by the A. G. A. Steel Requirements Committee, Alexander Macomber, Portland Gas Light Co., Boston, Mass., chairman, the report employs extensive statistical and pictorial evidence to present in extensive detail the gas industry's pressing need for steel.

Copies of the report were distributed and

discussed at a meeting of the Steel Requirements Committee with Max W. Ball, director, Oil and Gas Division, Department of the Interior, in Washington, June 10. Mr. Ball is expected to recommend to the Department of Commerce that the gas industry's steel requirements, as presented by the A. G. A. committee, be included in the Department's voluntary steel allocation program.

New A.G.A. Personnel Group Organized



L. A. Brandt

ference, is to provide an opportunity for discussion of developments and trends in the gas company industrial relations field.

L. A. Brandt, assistant to vice-president, The Peoples Gas Light and Coke Co., Chi-

A GREAT Lakes Personnel Conference sponsored by the Personnel Committee, American Gas Association, was organized at a meeting of gas company personnel executives in Chicago, June 11. Purpose of the conference, which will be patterned after the A. G. A. Southwest and Midwest Personnel Con-

cago, has been elected first chairman of the Great Lakes Personnel Conference. The next meeting will be held in Chicago, September 14, and all utility personnel executives in that area are invited to participate. Details of the program will be supplied upon request to Mr. Brandt.

At the June 11 organization meeting, Vernon Myers, Sioux City Gas and Electric Co., chairman of the Midwest Conference, explained how effectively these informal groups function. Kurwin R. Boyes, secretary, A. G. A., outlined cooperative efforts of the Association designed to assure maximum usefulness of these meetings to gas company members.

C. G. Simpson, The Philadelphia Gas Works Co., is chairman, A. G. A. Personnel Committee.

Gas Associations Coordinate Programs

PROGRAMS of the national and regional gas associations were thoroughly reviewed at an all-day meeting June 16 at American Gas Association headquarters in New York. Purpose of the meeting was to promote more effective cooperation, coordination and integration of activities and to prevent any overlapping of programs.

Attending the session were staff members of the A. G. A., Gas Appliance Manufacturers Association, and managing directors of the New England Gas Association, Pacific Coast Gas Association, and Southern Gas Association. Editors of gas trade magazines participated during part of the meeting and exchanged views on news coverage and other pertinent topics.

Various national A. G. A. programs, par-

ticularly those devoted to research, promotion and advertising, which are now under way or in the planning stage, were described and many points of coordinated activity were discussed. The A. G. A. Laboratories' appliance testing program came in for review as well as statistical, utilization, commercial, industrial, residential and other activities. A point of special interest to the manufacturers' association was the exchange of views on the question of whether it is desirable to hold gas appliance exhibitions in connection with regional association conventions.

A special feature of the meeting was the showing of the new color motion picture "The Eternal Flame," produced by The Columbia Gas System, Inc.



Meeting of national and regional gas association executives and gas trade magazine representatives: (left to right) Edwin L. Hall, director, A.G.A. Testing Laboratories; Harold Massey, assistant managing director, G.A.M.A.; Edward Titus, eastern editor, "Gas," H. O. Andrew, editor, "Gas Age," George H. Smith and James M. Beall, A.G.A.; H. Leigh Whitelaw, managing director, G.A.M.A.; Robert R. Suttle, managing director, S.G.A.; Clark Belden, executive secretary, N.E.G.A.; Clifford Johnstone, managing director, P.C.G.A.; Kurwin R. Boyes, A.G.A., and S. G. Krake, publisher, "American Gas Journal"

Terrell To Head 1949 Gas Short Course

E. C. McANINCH, Oklahoma Natural Gas Co., who presided over the morning sessions as general chairman of the 1948 Southwestern Gas Measurement Short Course, will be succeeded as general chairman of the 1949 short course by C. E. Terrell, Southern Natural Gas Co., Birmingham, Alabama. Mr. McAninch automatically becomes a member of the executive committee.

The chairman of the Publications Committee for the 1948 short course, Ben F. Worley, United Gas Corp., Houston, has announced the proceedings of this year's course will be available for distribution in bulletin form on or about August 15.

Seven prize-winning papers on the subject, "What I Learned at the Gas Measurement Short Course," have been selected as follows: first prize—Sherwood Tucker, Lone Star Gas Co., Dallas; second prize—E. P. Prater, Arkansas Louisiana Gas Co.; third prizes—D. D. Echols, plant chemist, Neale Gasoline Plant, Atlantic Refining Co.; James W. Smith, Peoples Natural Gas Co., Ogden, Iowa; C. H. Perry, Warren Petroleum Corp., Tulsa; C. L. Ritter, superintendent of operations, Natural Gasoline and Gas Division, Continental Oil Co., Ponca City, Okla., and Joe Pollard, Pryor, Oklahoma.

Utility-Dealer-Manufacturer Show



Thelma Holmes, home service director, Alabama Gas Co., Birmingham, in gas cookery demonstration conducted jointly with J. Oviatt Powers Co., Caloric dealer in Tuscaloosa, Ala., and Caloric Stove Corporation. Three-way cooperation cements fine feelings between utility and local gas appliance dealers

San Diego Report Receives Award

A SILVER Anvil from the American Public Relations Association has been received by San Diego Gas & Electric Co., San Diego, Calif., for the most effective use of public relations techniques and procedure in its 1947 annual report. Hance H. Cleland, chairman of the board, received the award on behalf of the company.

The public relations group's top award, the Silver Anvil is presented each year for the most outstanding public relations job on annual reports, newspaper and magazine adver-

tising, motion pictures, radio, direct mail, employee and consumer publications.

The San Diego annual report places strong emphasis on continued postwar growth of the company's territory with full-page pictures throughout the book to illustrate the industrial and economic growth of the area served.

The company's 1946 annual report was awarded a "Silver Oscar" by *Financial World* in a tie with Seattle Gas Company for the best report of all utilities. Forrest M. Raymond is superintendent of advertising for the company and both the 1946 and 1947 reports were produced under his supervision.

Correction

ON page 38 of the June MONTHLY in an article entitled "Columbia Gas System Increases Supplies," it was incorrectly stated that Equitable Gas Co., Pittsburgh, Pa., was a subsidiary of Columbia. While the Columbia System does serve part of the Pittsburgh area, there is no connection between it and the Equitable Gas Company. The error occurred in the rewriting of several releases relating to increased gas supplies in the Appalachian area.

Nitrogen Removal to Be Discussed in August

A SPECIAL meeting and round-table discussion on removal of excess nitrogen from natural gas will be sponsored by the U. S. Bureau of Mines at Amarillo, Texas, August 16 and 17 for gas company engineers interested in this problem.

Held in connection with a cooperative study of the subject by the Bureau of Mines and American Gas Association, the meeting will be designed to give gas engineers greater

familiarity with the technical and economic phases of the problem and prospective means for its solution, particularly by liquefaction and fractionation.

An opportunity will be afforded at one of the sessions for engineering contractors and others to present to the group information and proposals on nitrogen removal plants.

Persons desiring to attend the meeting should advise P. V. Mullins, U. S. Bureau of Mines, P. O. Box 911, Amarillo, Texas.

Formation of Cooperative Radio Committee Started

A COOPERATIVE committee has been created by the American Gas Association to participate in a larger cooperative group to be formed with other related trade associations which use mobile radio facilities.

Action was taken in view of the contemplated dissolution of the present Radio Technical Planning Board—an advisory group representing industries whose interest in radio is vital to the public. Formation of the new group was suggested in a resolution submitted to the Association's Executive Committee by the A. G. A. Mobile Radio Committee, under the chairmanship of E. M. Borger, president, The Peoples Natural Gas Co., Pittsburgh.

The committee will be composed of Warren T. Bulla, Natural Gas Pipeline Co. of America, Chicago, the Association's representative on the Radio Technical Planning Board; W. H. Weber, The Brooklyn Union Gas Co., and T. G. Humphreys, Jr., Birmingham Gas Co., Birmingham, Alabama.

Actual formation of the new cooperative committee is contingent upon the decision of the other trade associations to participate.

Mr. Borger's committee of executive will continue to formulate mobile radio policies as they affect the gas industry.



New Publications

● **THE COMMERCIAL KITCHEN**, the gas industry's newest and largest handbook for commercial gas men, is now ready for distribution. The new publication was prepared under the supervision of the Food Service Equipment Committee, Industrial & Commercial Gas Section, Walter S. Anderson, Boston Consolidated Gas Co., chairman.

It contains ten chapters of factual information covering such topics as: kitchen layouts, sales approaches, operating data, equipment selection, water heater sizing, and other pertinent items which make it required reading

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MONTHLY

for every commercial gas man, commercial appliance dealer, and sales executive.

Attractively bound in cloth, its 242 pages are profusely illustrated and conveniently indexed. There are 72 tables for ready reference. The price is five dollars.

● **RESEARCH PROGRESS AND PLANS OF THE AMERICAN GAS ASSOCIATION**, which has just been published, shows how nearly one and a half million dollars has been spent on research in the past three years to help make the gas industry a leader in cooperative efforts aimed at overcoming problems and pointing the way for greater progress. Detailed outlines provide an over-all picture of past work and future plans in gas production, general technical, domestic gas, and industrial & commercial gas research.

Texas Gas Contracts to Help Appalachian Area

TEXAS Gas Transmission Corp., Owensboro, Ky., has signed 20-year contracts for delivery of 235 million cubic feet of natural gas a day for use in the Appalachian and other Eastern areas by June 1, 1950. The agreements were signed with subsidiary companies of Consolidated Natural Gas Company, The Columbia Gas System, Inc., and Texas Eastern Transmission Corporation.

The new contracts are contingent upon construction by Texas Gas of a 26-inch, 840-mile pipeline from the Carthage Gas Field in Texas to a point near Middletown, Ohio. Estimated cost of the line and compressors, together with normal additions on existing lines through 1951, is \$79,300,000.

Under terms of the new contracts, the company expects to be able to put its new line in preliminary operation by late 1949. Deliveries from this date until spring 1950 are expected to average 265 million cubic feet a day.

W. T. Stevenson, executive vice-president, declared that the contracts already signed and those in the process of being signed assure the company of the bulk of its gas requirement for the new line. By winter 1949-50 Texas Gas expects to be able to help relieve domestic gas shortages during peak months.

Inch Lines Capacity To Be Increased

TEXAS EASTERN TRANSMISSION CORP., Shreveport, La., has received temporary authorization to construct new facilities which will increase the capacity of the company's Inch pipeline system 75 million cubic feet daily to 508 million cubic feet of natural gas a day by the beginning of 1949.

R. H. Hargrove, president, stated that the new supply will "assist in alleviating the threat of severe gas shortages such as were experienced last winter."

Part of the supply will come from gas now being flared in the Southwest. Texas Eastern will buy casinghead gas from three Texas fields at the combined rate of 55 mil-

lion cubic feet a day.

Work has already started on the installation of additional compressors aggregating 86,400 horsepower, to be apportioned among 21 existing compressor stations. The company's schedule calls for a total of 239,900 compressor horsepower by the beginning of 1949. Of this amount, 73,900 horsepower will be installed in seven reciprocal compressor stations, and the balance of 166,000 horsepower in 14 centrifugal compressor stations of a new type which the firm has pioneered (see page 12, A. G. A. MONTHLY, June 1948).

Immediate construction of three new gathering lines is planned. Twenty miles of eight-inch pipe will be built from the company's

Minneapolis Wins Advertising Honors

TOP place among gas companies entered in the 1948 nationwide Better Copy Contest sponsored by the Public Utilities Advertising Association, was captured this year by Minneapolis Gas Light Company with three first places and one second place out of four categories entered.

Chosen for first place among entries in its own size classification was the company's campaign of newspaper advertisements promoting the use of gas and featuring both automatic gas water heaters and modern automatic gas ranges.

One of the advertisements from this campaign was also selected for the first-place national award from among 53 entries as the best single newspaper advertisement promoting a gas appliance. The third first-place national award was given for the best newspaper advertisement on a public relations subject.

Second place among 53 entries in the outdoor advertising classification was given to the Minneapolis company's painted bulletin featuring automatic gas cooking.

Other gas industry winners in their various classifications were as follows:

Gas Series of five or more newspaper advertisements—Illinois Northern Utilities Co., Dixon, Ill., and Southern California Gas Co., Los Angeles.

Single gas newspaper advertisement on a public relations subject—Central Illinois Electric and Gas Co., Rockford, Ill., and Consolidated Edison Co. of New York, Inc., New York.

Single newspaper advertisement promoting the use of gas service—Houston Natural Gas System, Houston, Texas, and The Cincinnati Gas and Electric Co., Cincinnati, Ohio.

Single newspaper advertisement on any subject—The Tri-City Lines of Iowa-Illinois Gas & Electric Co., Davenport, Iowa.

Bill enclosures, postcard billing cards, direct mail pieces, publications and other material sent to residential customers—Public Service Co. of Colorado, Denver, Colo., and Northern Indiana Public Service Co., Hammond, Indiana.

Special booklets, pamphlets, circulars—Interstate Power Co., Dubuque, Iowa; Public Service Co. of Colorado, and New York State Electric and Gas Corp., Binghamton, New York.

present line to the Stanolind Oil and Gas Company gasoline extraction plant in Hastings field. In Louisiana two ten-inch lines, one five and one two miles long, will be laid from the Little Big Inch line to new gasoline extraction plants being built by The California Company and Southwest Gas Producing Company in the Hico-Knowles field.

Another ten-inch extension, running 17.2 miles from the Little Big Inch to the Silsbee field in Texas, will be started late this year.

These new facilities will raise the total capital cost of the system to about \$182,700,000, or approximately \$10,300,000 more than the over-all cost of the Inch Lines system at the originally planned delivery capacity of 433 million cubic feet a day.



This striking advertisement on automatic gas water heating won a prize for Minneapolis Gas Light Company in the P.U.A.A. Better Copy Contest

Window display—Houston Natural Gas Corp., and Philadelphia Electric Company.

Inside display—New Orleans Public Service, Inc., New Orleans, La., and The Cincinnati Gas and Electric Company.

Outdoor advertising—The Hartford Gas Co., Hartford, Conn., and Pacific Gas and Electric Co., San Francisco.

Annual Report to stockholders—New York State Gas and Electric Corporation.

Films—The Connecticut Light & Power Co., Hartford, Connecticut.

Herbert Briggs, Jr., Philadelphia Co., was elected P.U.A.A. president at the close of the two-day convention in Cleveland.

Other new officers are: first vice-president—Floyd I. Fairman, Kentucky Utilities Co.; second vice-president—W. B. Hewson, The Brooklyn Union Gas Co.; third vice-president—John E. Canfield, Wisconsin Power and Light Co.; secretary—C. D. Lyon, Potomac Edison Co.; treasurer—Mead Schenck, Interstate Power Company.

New directors include John S. Spaulding, Southern California Gas Co., and L. Edwin Gill, Jr., New Orleans Public Service Company.

Citizens Gas Fetes Veteran Employees



Twenty employees of Citizens Gas and Coke Utility, Indianapolis, Ind., were inducted into the Quarter-Century Club at the ninth annual utility dinner, June 16. Dean T. Burns, assistant general manager, presented certificates and diamond-studded pins to the group, largest ever to become eligible for membership at one time, in recognition of their 25 years of service. One new member was not present.

Trans-Continental Pipeline Approved

CONSTRUCTION of an 1,840-mile pipeline by Trans-Continental Gas Pipe Line Co., Longview, Texas, to bring natural gas from the Southwest to New York City and the Middle Atlantic area, has been approved by the Federal Power Commission. The line is expected to be ready for operation by the fall of 1950.

Cost of the pipeline is estimated at between \$151 million and \$180 million with sales capacity expected to reach 325 million cubic feet a day in summer and 340 million cubic feet a day in winter.

The Commission estimated that the natural gas would take the place of at least 629 million gallons of fuel oil, currently in short supply "and will bring extensive benefits to

as many as four million utility customers in the Middle Atlantic area."

Conditions to granting an F.P.C. certificate include that the company study further the possibilities of underground storage of gas in off-peak seasons, and that construction be started within one year after the certificate is granted and completed within 28 months.

Transcontinental expects to move ahead with final arrangements for the pipeline's right of way and to start construction by mid-summer.

Cooking Film Ready For Review in August

THE gas industry's first full-color commercial cooking film, "Where Food is Finest," is scheduled for completion by August 1, after which copies will be available to member gas companies for review.

General distribution is scheduled for mid-September and in order for prints to be available for customer showings after that date, gas companies are urged to review the film before September.

Requests for copies will be honored in the order they are received by John J. Bourke, director, Commercial Gas Cooking Promotion, American Gas Association, 420 Lexington Ave., New York 17, N. Y.

Output of Low-Purity Oxygen to Be Increased

TOTAL yearly production of tonnage of low-purity oxygen by seven large plants now in construction will run to an estimated 40 billion cubic feet, or nearly twice the 20-500,000,000 cubic feet of high-purity oxygen produced annually at the wartime peak, Dr. Charles R. Downs, consulting chemical engineer informed the Chemical Market Research Association at its recent annual meeting in New York.

Warning that estimated costs of making

90-95 percent oxygen must necessarily be considered tentative, Dr. Downs said such costs appeared to range from \$7.02 a ton for a plant producing 100 tons a day to \$3.67 a ton for one operating at 1,000 tons a day. These figures exclude the price of steam and other power-generating facilities, and are based on amortization of plant costs at the rate of ten percent annually.

Dr. Downs, in discussing the transition taking place from the use of 99.5 percent oxygen as an aid in cutting and welding, to that of 90-95 percent oxygen as a combustion agent and raw material, stressed that potential uses of the latter depend on production cost, compared to the benefits derived over using air.

He listed five large potential markets for the new type of oxygen, including the production of synthetic liquid fuels, iron and steel, sulfuric acid, manufactured or reformed natural gas, and chloroene.

Second Gas Well Drilled On Robertshaw Property

ROBERTSHAW-FULTON Controls Company has announced completed drilling of a second natural gas well on the property of the company's Robertshaw Division at Youngwood, Pennsylvania. The two wells will have an annual capacity of more than 36 million cubic feet and will provide the division with an adequate supply of fuel for next winter.

Half Billion Slogan Cards Circulated

More than one hundred gas companies are using cards like those above, with flame and slogans in blue. A half billion impressions is the record. Inquiries should be sent direct to Relief Printing Corp., 87 Summer St., Boston 10, Massachusetts.

Gas Company Honors Savannah Civic Leader



The Hillyer award, named for Hansell Hillyer, president, South Atlantic Gas Co., and inaugurated by the company this year to recognize Savannah, Georgia's woman citizen, was presented by Mrs. W. Walter Douglas (left) to Mrs. Angus N. Purvis (right), American Cancer Society. A similar award for men was started in 1924.

Gas All-Year Air Conditioning Expands

THE current year is bringing a marked change in the pattern of gas all-year air conditioning. Electric companies in some areas now are discussing the possibilities of promoting sales of certain types of gas all-year air conditioning.

Air conditioning with gas as a fuel is attractive to electric companies in certain areas because of its inherent possibilities. Gas is favored as a fuel for space heating in today's competitive market. Electric utilities generally have not been particularly interested in acquiring a residential air conditioning load. In some cases, they have discouraged it because of the increased investment required to provide service to operate air conditioning equipment in residential areas and the low annual revenue derived from summer operation only.

After more than 15 years of research, development and field testing, gas all-year air conditioning now is an established and fast-growing service in the gas industry. Many of the underlying factors responsible for the progress of this modern convenience have emanated from the American Gas Association's research program and projects still are under way to further its development.

Servel, Inc., and Surface Combustion Corporation are in production on residential units, hundreds of which are in operation in homes in every part of the country. Merchandising plans of many gas companies for 1948 include promotion of gas air conditioning. Moreover, recent surveys indicate more than 30,000 immediate prospects in areas where no shortages exist or in homes now equipped for gas heating in restricted areas.

Commercial and business areas also have proved profitable markets for gas air conditioning. Among the manufacturers of commercial gas air conditioning are Surface Combustion Corp., Bryant Heater Co., and Eureka Williams Corporation.

Gas air conditioning, as it is in practical operation today, is achieved under different processes. Under one method steam is developed during the heating cycle and delivered to a heating coil over which air is drawn. The heated air passes through a humidifier section where moisture is added and is then delivered to the spaces to be heated. During the cooling cycle steam is delivered to an absorption refrigeration unit containing lithium bromide and water. Air is cooled and dehumidified as it passes over the cooling coil. The same equipment is used for both cycles and climate control is achieved by a flick of a switch.

Under other methods air conditioning is achieved by absorption of excess moisture in air through contact with lithium chloride or silica gel. This moisture is removed from the absorbents by application of gas heat or other means and the absorbents re-used in a continuing cycle. In winter months under these processes, moisture can be added to the air for climatic comfort. Air temperatures can be maintained or raised or lowered independently under these processes and their

flexibility and economical operation have recommended them extensively for industrial and commercial installations in hotels, theatres, night clubs, restaurants, stores and business locations.

Economic factors are causing an increasing number of gas companies to include promotion of air conditioning in their new sales programs. Restrictions on sales of gas house-heating are gradually lifting. With the gas air conditioning load to fill the valleys during the summer months, a total system load which will yield a year-round profit can be achieved.

New construction is becoming an important market with the improvement in the

supply of building materials. Existing homes with gas warm air or gravity systems have proved ready markets for gas all-year air conditioning. With all of its experimental research and development behind it instead of ahead, gas all-year air conditioning is an established factor in modern living which has won public acceptance.

Gas utilities often have been asked whether or not the Faraday reversed refrigeration cycle, discovered nearly a century ago and today being publicized as the heat pump, is not applicable to gas. Manufacturers of heat pumps today are producing this equipment for operation with gas as a fuel. With suitable equipment in the building this process can be applied either to winter heating or summer cooling or to both.

Gas Featured on Television Show



Television is news and it's news too that Corris Guy, well-known home economist, is using a gas range, gas refrigerator and a hydraulic dishwasher on the set for her television show "Happy Housewife." A feature on Paramount Picture's KTLA, the show is telecast weekly to Southern California from Hollywood

Emergency Gas Groups Formed

AN informal conference in Washington, D. C., May 21, between natural and manufactured gas company executives and the National Security Resources Board, has paved the way for preparations which would assure an adequate supply of gas in event of a war emergency.

Industry representatives agreed to name a committee or committees which would assist the N.S.R.B. in making a survey of gas supplies and estimated demands for the next five years; attempt to cope with bottlenecks facing the industry; carry forward an economic study of the price of gas in relation to the price of other fuels, and study and report on technological developments affecting the gas industry.

Hudson W. Reed, president, The Philadelphia Gas Works Company and the American Gas Association, offered the Association's study of requirements based on normal needs, as a supplement to the Armed Forces' forthcoming estimate of gas needs for defense plant operation.

Recognizing that a bottleneck exists in pipe for transmission lines, Arthur M. Hill, N.S.R.B. chairman, urged that a seven or nine-man committee be appointed to present

before Congressional committees the gas industry's case for steel pipe. Alexander Macomber, Boston, Mass., and J French Robinson, president, The East Ohio Gas Co., Cleveland, were designated to meet with Edward Falck, N.S.R.B., to select this committee.

N.S.R.B. representative stated that their aim is to assist in removing obstacles to gas industry expansion so that the industry could be of maximum assistance in any emergency, and also to develop proper legislation in this field to meet such an emergency.

Methods of Pay Roll Distribution Exhibited

THREE bound volumes describing individual methods of pay roll distribution which are being practiced by reporting companies are now available for inspection at the Accounting Section office, American Gas Association, 420 Lexington Ave., New York 17, N. Y. The exhibit contains replies from 33 gas and electric utilities and is also available for loan.

Australian Company Stages Gas Exhibit



Portion of the hot water section of the Australian Gas Light Company's exhibition at the Royal Agricultural Society's Sydney Easter Show. Three of the large photographic murals can be seen

THE high standard of displays set by the Australian Gas Light Company in previous years was maintained at the Royal Agricultural Society's Sydney Easter Show.

Designed primarily as a sales unit, the company's exhibition enabled the public an opportunity to examine at close hand different gas appliances and displays.

Dominant feature of the exhibition was a series of giant photographic murals mounted on four panel-shaped towers and depicting the comfort and convenience of gas-fired service for the four big jobs in the home.

Other sections included one devoted to kitchen planning activities and a home service information bureau with examples of icing and cake decorations from the company's cookery colleges.

Asbestos sheets were used to give a shell-like finish to the stand design.

Horizontal rods were used in the water heater display while show cards with miniature kettles, saucepans and crockery depicted hot water needs in the home.

Rochester Applies for Increase in Gas Rates

RISING cost of producing and distributing gas have forced Rochester Gas & Electric Corp., Rochester, N. Y., to file with the New York State Public Service Commission a new schedule of gas rates which will increase cost to all classes of consumers, industrial, commercial and residential, an average of 13 percent.

The average residential customer in the Rochester area using gas for cooking and water heating will be increased about 37 cents a month, whereas the average customer using gas for house heating as well as for cooking and water heating, will be increased about \$2.93 a month. The present initial charge of 500 cubic feet for 75 cents a month

will be increased to 85 cents for 400 cubic feet a month.

Alexander M. Beebe, Rochester president, pointed out that if allowed, the increase in gas rates would be the first the company has received in approximately ten years. It would add about one million dollars a year to revenues and would be spread over 127,000 gas customers.

New Underground Test Planned for Gorgas

APPROVAL of a contract between the Bureau of Mines and Alabama Power Company for a second and larger cooperative experiment in underground gasification at Gorgas, Ala., has been announced by James Boyd, Bureau director.

If proven feasible, underground gasification offers attractive possibilities for minimizing expensive mining and for utilizing coal veins difficult or uneconomic to mine.

Mr. Boyd estimated that site-preparation work would be completed by next fall and at that time interested persons will be invited to inspect the underground workings before the coal bed is fired for the first experimental run.

Trade Association Research

HOW trade associations finance research; select technical committees and decide on their projects; coordinate and supervise research programs, and disseminate findings in their industries, is described in a 64-page booklet, "Trade Association Industrial Research," published by the Department of Commerce.

Copies may be obtained through field offices of the Department of Commerce, or from the Superintendent of Documents, Washington 25, D. C., at 25 cents each.

"CP" Unit Sales Make Sharp Rise

DURING the first four months of 1948, unit sales of automatic gas ranges built to "CP" standards rose 302.8 percent over the similar period last year. Total industry gas range sales for this period were 921,584, an increase of approximately 20 percent over 1947.

Commercial Gas Catalog Ready for Distribution

THE 1948 edition of *Cooking for Profit* kitchen equipment catalog is now being distributed. This year's issue shows representative specimens of the best equipment of the major gas manufacturers and is reported to be the only publication available which shows the restaurant operator the best in modern gas cooking equipment in one set of covers.

Entitled "What's Newest In Cooking Equipment," the 1948 catalog has 24 pages of tested and approved equipment. Last year's edition was distributed by gas companies to more than 40,000 restaurant and hotel operators all over the country.

Gas company personnel and manufacturers should write to the publishers, Gas Magazines, Inc., 114 South Carroll St., Madison 3, Wisconsin, for sample copies and price schedules of this gas load builder.

Commercial Gas Breakfast To Start New Tradition

THE first annual Commercial Gas Breakfast will be sponsored by the Industrial and Commercial Gas Section during the week of the National Hotel Exposition in New York, November 8-12. This idea is in keeping with a companion breakfast which has become a tradition with industrial gas men and has been held during Metal Show Week for the past 11 years.

Primary aim of the breakfast will be to give editors of trade publications in the food service field an opportunity to meet commercial gas men and equipment manufacturers. The program will feature an outstanding guest speaker on a topic of interest to all in the field. Detailed announcement as to the day and the hotel in which the breakfast will be held will be made at a future date.

During the same period, 32.6 percent of "CP" manufacturers' sales of oven-heat-controlled (O.H.C.) ranges for city gas were "CP" models, and 12.3 percent of all gas ranges sold by the industry for city gas were "CP" models:

Sales statistics for the first four months of 1947 and 1948 are as follows:

	1947	1948	% Change
Total Industry Gas Range Sales	768,100	921,584	+ 20.0
Total "CP" Manufacturers' O.H.C. Sales	335,739	350,453	+ 4.4
Ratio of "CP" Manufacturers' Total O.H.C. Sales to Total Industry Sales	43.7%	38%	
Total Industry City Gas Sales	567,300	667,783	+ 17.7
Total "CP" Manufacturers' City Gas O.H.C. Sales	345,090	255,831	+ 4.4
"CP" Unit Sales	20,712	83,448	+302.8
Ratio of "CP" Models Sold to "CP" Manufacturers' City Gas O.H.C. Sales	8.5%	32.6%	
Ratio of "CP" Models Sold to Total Industry City Gas Sales	3.7%	12.3%	

Pittsburgh Group Offices Remodeled



When the Pittsburgh Group of associated gas companies in The Columbia Gas System, Inc., recently remodeled general offices in Pittsburgh, a 6 by 13 foot photo mural was placed on one wall of a new reception room. Among the 11 pictures forming the sepia montage are scenes of pipeline ditching, welding and river crossing; compressor stations, propane storage tanks and well drilling

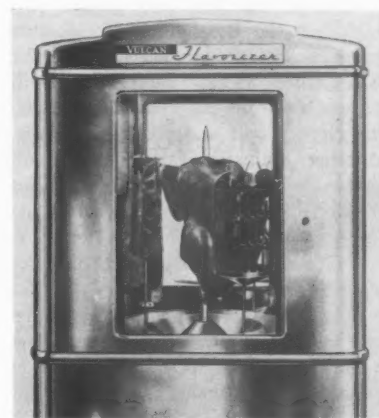
the frontiers of fuel technology at an accelerating pace on an expanding horizon of fuels production and fuels utilization."

In an illustrated booklet prepared for the dedication, the new laboratories are described as the largest and best of their type in the world.

"Important progress is being made," the booklet states, "progress toward the reduction of synthetic fuel costs. Major improvements already have been made in German processes. Others are within reach.

"These new processes are expected to advance at an ever-increasing rate, now that the well-trained staff of approximately 300 persons has the facilities for intensive research. Eventually, step by step, such research progress will make available commercially a potential reserve of synthetic gasoline and oil dwarfing all our other sources."

Wide Interest Shown In Novel Cooking Unit



Close-up of glass-enclosed cooking unit showing food mounted on the various spits and holders

NEWEST idea in commercial cooking is the Vulcan Flavorizer made by Standard Gas Equipment Corp., Baltimore. When shown at the Restaurant Show in Cleveland, the F.S.E.I. at Atlantic City and the New England Hotel and Restaurant Show in Boston, this new patented cooking process attracted no end of attention.

Foods are cooked in a glass-enclosed unit which houses vertical spits and holders mounted on a revolving base. These spits and holders revolve individually as they move around a planetary track. A vertical gas-fired radiant heating element in each of the four corners supplies radiant heat which produces cooked food of appetizing color and flavor.

Cooking is done with almost a complete absence of food odors and a number of different foods can be cooked at one time without intermingling of tastes. The cooking operation is clean and free from smoke, flavor is sealed in, shrinkage is at a minimum, and less time is consumed for cooking.

Gas Industry Personnel Conference

MEMBERS of the American Gas Association Southwest Personnel Conference at a meeting in Birmingham, Alabama, on June 7, voted to cooperate with the A. G. A. Midwest Personnel Conference and the A. G. A. Personnel Committee in sponsoring a Gas Industry National Personnel Conference November 18 and 19 in Chicago, Illinois.

About 25 personnel executives attended the meeting under the chairmanship of Willard Wiegell, personnel director, Lone Star Gas Co., Dallas, Texas. Reports were made on trends and developments in union contract negotiations, cost-of-living bonuses, pension plans, leaves of absence for military

training, employment of minors, college graduate placements, wage rate exchange, and other pertinent problems. In the interest of coordination, industrial relations activities of the Association were described by its secretary, Kurwin R. Boyes.

Arrangements for the conference were made by Robert G. Kenan, Southern Natural Gas Company. Gas company representatives are invited to attend the next meeting of the conference in New Orleans, September 10, and other future meetings. Copies of the notice for the meeting can be obtained from R. P. Marshall, Texas Gas Transmission Corp., Memphis, Tennessee.

Servel Announces Price Reductions

IN an effort to help check the inflationary trend in consumer prices, George Jones, vice-president in charge of sales, Servel, Inc., Evansville, Ind., has announced a price reduction on two models which account for nearly 50 percent of the company's production of gas refrigerators.

Mr. Jones also announced production of a new six cubic foot refrigerator designed especially for the low-priced retail market and for housing projects. Manufacture will start early in July.

A. G. A. Vital Force

FOLLOWING is an excerpt from a letter received recently from the superintendent of an eastern utility:

"I have always felt that the American Gas Association was a vital force in the progress

of the gas industry and would like to contribute in every way that I can to its operation. In addition to being an individual member I would welcome the opportunity of serving on any of the committees for which I might be qualified."

Complete information on how to join the Association is available from the Secretary, American Gas Association, 420 Lexington Ave., New York 17, N. Y.

Fieldner Views Frontiers Of Fuel Technology

A NEW era in the processing of coal for the production of gaseous and liquid fuels was predicted by Arno C. Fieldner, chief, Fuels and Explosives Division, Bureau of Mines, at the dedication of the Bureau's synthetic liquid fuels research and development laboratories at Pittsburgh, Pa., May 21.

In the new era, Dr. Fieldner said, major units of gas, petroleum and coal research will merge on a common front and finally "advance

*Name will be furnished on request.

A.G.A. CONVENTION

(Continued from page 8)

ments Service" and others will be presented by qualified speakers. Thursday afternoon has been left open for committee and organizational meetings.

A luncheon featuring a top-flight utility speaker discussing the value of the industrial gas load to the gas industry will open the Industrial and Commercial Gas Section program Tuesday afternoon at the Ritz-Carlton Hotel. This will be followed by a full afternoon session at which the major activities of the Section will be reviewed. The A. G. A. commercial gas cooking promotion program will be given a prominent spot and will include a showing of the new film "Where Food Is Finest." Other prospective subjects are publicizing industrial and commercial gas, and industrial gas sales and research.

Colorful dramatic presentations will highlight the Residential Gas Section program Wednesday afternoon at the Ritz-Carlton Hotel. Servel, Inc. will present a skit on gas refrigeration utilizing eight people and a revolving stage. Another dramatized presentation will throw the spotlight on gas single-point ignition. A nationally known authority in the water heating field will analyze the question "What About GAS Water Heating?" Rounding out the program will be an inspirational speaker discussing the topic, "So You Think You're Slipping." Also of interest to Home Service personnel and all sales-minded delegates will be the Home Service round-table symposium Tuesday afternoon at the Ritz-Carlton Hotel.

Program committees of the Chemical, Distribution, Corrosion, Production and Motor Vehicle Committees have prepared a balanced diet of key engineering and operating subjects for presentation at the Technical Section meetings on Tuesday, Wednesday and Thursday afternoons at the Ambassador Hotel. High on the agenda for discussion by outstanding speakers are such topics as synthetic liquid fuels, developments in a newly constructed catalytic cracking plant, use of LP-gases, reducing installation costs of appliances, mains and services, personnel training programs, modernizing existing plants to expand capacities, and the latest purging procedure. Accident prevention and safety work will receive special attention and

motion pictures may be used to drive home the best operating practices.

Rounding out the picture of a "brass tacks" convention at work and play, will be an enjoyable entertainment program of wide appeal. The Convention Entertainment Committee under the chairmanship of Louis R. Quad, Public Service Electric and Gas Co., Elizabeth, N. J., has arranged a varied program which should prove exceedingly popular.

SALES ON LOCAL LEVEL

(Continued from page 18)

with 1,908 heater sales in the comparable period a year ago, for an increase of 63 percent.

Behind these dramatic figures lies an intensive and extensive sales promotion program.

Four automatic gas water heater lines are being given the major promotion impetus, each of them a quality product backed up by Brooklyn Union with a superior sales offer. Each heater is guaranteed for five years and protected for another five. A trade-in allowance up to \$25 is given on old water heating equipment and down payments are low, usually under twenty dollars, with the remainder payable on easy terms.

The company's well-trained sales force has been supplemented by associated plumber-dealers and frequent sales meetings have been held starting with an old-fashioned sales competition, the Magic Carpet Prize Thriller Campaign. All dealers and salesmen are contestants and are awarded merit points for each water heater they sell. At the end of the contest, contestants pick from a catalog a prize or prizes of value relative to the amount of merit points they have amassed.

A major part of Brooklyn Union's advertising budget is devoted to water heater promotion. Twice a month during the water heater season 560-line advertisements appear in eight metropolitan dailies with a combined circulation of 2,043,293. Smaller insertions are placed in 42 smaller papers, community weeklies, and papers with special audiences having a combined circulation of another 688,000.

Other media, such as four-color bill enclosures which go to each of 825,000 customers, carry out the same theme. *Dealer's Choice*, a Brooklyn Union plumber-dealer paper, and trade maga-

zine advertisements feature water heating extensively. Two large broadsides printed in color have been distributed to the 325,000 one and two-family houses in the territory.

Colorful displays on each of the utility's eight sales floors aid salesmen in securing prospects' attention. At the same time more than one-quarter million pieces of literature from manufacturers has been made available to sales people and plumber-dealers. Hundreds of truck posters carry the water heating message all over town, and strategically located billboards catch the prospect's eye.

In all these varied ways, Brooklyn Union is protecting future gas load through the sale of high quality gas appliances. Sales figures are continually breaking company records.

NOMINATING COMMITTEE

(Continued from page 7)

Manufacturers Section:

For Chairman—W. F. McConnor, vice-president, National Tube Co., Pittsburgh, Pa.

Residential Gas Section:

For Chairman—W. M. Jacobs, manager of general sales, Southern California Gas Co., Los Angeles, Calif.

For Vice-Chairman—H. Preston Morehouse, assistant sales manager—gas, Public Service Electric & Gas Co., Newark, N. J.

Technical Section:

For Chairman—W. R. Fraser, experimental engineer, Michigan Consolidated Gas Co., Detroit, Mich.

For Vice-Chairman—Ernest G. Campbell, general superintendent of distribution, The Peoples Gas Light & Coke Co., Chicago, Ill.

Laboratories Managing Committee:

For Chairman—Arthur F. Bridge, president and general manager, Southern Counties Gas Co., Los Angeles

For Vice-Chairman—C. E. Bennett, president, The Manufacturers Light & Heat Co., Pittsburgh, Pa.

Publicity and Advertising Committee:

For Chairman—R. G. Barnett, vice-president and general manager, Portland Gas & Coke Co., Portland, Ore.

Personal and Otherwise

Banks Receives New Post At Southern California



F. M. Banks



W. R. Davis

APPPOINTMENT of F. M. Banks as vice-president and assistant general manager, Southern California Gas Co., Los Angeles, Calif., has been announced by F. S. Wade, president. Mr. Banks was formerly vice-president in charge of sales, customer service and public relations.

At the same time two other executives were elected vice-presidents. R. R. Blackburn, formerly secretary and general agent, was made vice-president and secretary, and W. R. Davis, formerly personnel manager, became vice-president and personnel manager.

Mr. Banks is a director, American Gas Association, and has for a number of years been very active in A. G. A. activities. In his new capacity he will continue to direct sales and other departments, and in addition will assist President Wade in all other activities.

The new assistant general manager has been with the company since 1922. He rose from engineer through a series of positions to general supervisor of sales in 1930 and to vice-president in charge of sales in 1934.

Mr. Blackburn joined the company in 1921. He served as claim agent, and at various times as head of the personnel, claims and safety departments before he was elected secretary in 1942.

Mr. Davis was employed by the company in 1937, and has since been engaged in personnel work. He was made personnel manager in 1941. Mr. Blackburn and Mr. Davis are also A. G. A. members.

Gretsch Succeeds Stone As Danbury President



R. F. Gretsch

JAMES L. STONE has retired as president, The Danbury & Bethel Gas & Electric Light Co., Danbury, Conn., following 43 years in the public utility field, and Richard F. Gretsch, formerly assistant to the president, has been appointed to serve as his successor.

Mr. Stone came to Danbury in 1937 from Spokane, Wash., where he had been president and general manager, Spokane Gas and Fuel Company. Prior to that he served with Denver Gas & Electric Co., now Colorado Public Service Co., Toledo Railway and Light Co., now Toledo Edison Co., and Salina Light and Power Co., where he rose to vice-president and general manager.

Mr. Gretsch at 40 is one of the youngest presidents of a major utility in the country.

His career began with the cadet engineering course offered by Brooklyn Edison Company. Later he engaged in the management of various public utility properties in the Midwest controlled by the Manufacturers Trust Co., New York. When the public utility activities of the bank were segregated into a wholly-owned subsidiary, Utility Service Co., Mr. Gretsch was employed by Utility Service and was also an officer of several operating subsidiaries.

He is a director, Danbury & Bethel Gas & Electric Light Co., and a former director, Derby Gas & Electric Corporation.

Borger Becomes Dravo Director

EDWARD M. BORGER, president, The Peoples Natural Gas Co., Pittsburgh, Pa., was elected a director of Dravo Corp., Pittsburgh, at a directors' meeting on June 16.

Mr. Borger has been president of the natural gas company since 1940 and is a director of that company and Consolidated Natural Gas Company. He is currently chairman, Mobile Radio Committee, American Gas Association.

A.G.A. Statistical, Accounting Promotions



T. J. Shanley

port, La., has been announced by H. Carl Wolf, A. G. A. managing director.

Appointment for the first time of a fulltime secretary for the Accounting Section marks the increasing importance of accounting work in gas industry activities.

Mr. Zwanzig is well-qualified to direct the Statistical Bureau's extensive projects. Until recently an instructor in the Department of Public Utilities and Real Estate, New York University School of Commerce, he has broad public utility experience.

Following graduation from Massachusetts Institute of Technology with an M.S. degree in electrical engineering, he was employed from 1936-1942 by Public Service Electric & Gas Co., Newark, N. J., and later became associated with H. B. Dorau on several public utility consulting projects. He helped prepare exhibits presented during the Federal Power Commission's natural gas industry investigation in 1946. He was appointed A. G. A. senior statistician in March 1948.

APPOINTMENT of Otto E. Zwanzig as acting director, Bureau of Statistics, American Gas Association, and of Thomas J. Shanley as secretary, A. G. A. Accounting Section, to succeed Walter E. Caine who is resigning both positions to become secretary and treasurer, Texas Eastern Transmission Corp., Shreve-



O. E. Zwanzig



Daniel Parson

Mr. Shanley joined the Association as a statistical clerk in 1934 then served as assistant statistician until 1943. Upon release from the Army, he rejoined A. G. A. in February 1946 as statistical analyst under Mr. Caine. In June 1947, Mr. Shanley was appointed assistant secretary, Accounting Section.

Daniel Parson has been promoted from A. G. A. statistician to senior statistician. A graduate of the College of the City of New York with a business administration degree, Mr. Parson joined the Association as junior statistician in October 1944, became assistant statistician in June 1945, associate statistician in August 1946 and statistician in August 1947. He has been in direct charge of preparation of questionnaires and editing and tabulation of answers received from the gas industry for the past two years.

Prior to 1944, Mr. Parson worked for the Board of Investigation and Research, a federal agency, on the compilation of motor vehicle taxation data.

Cullen Retires from Harrisburg Company



G. C. Marrs

RETIREMENT of George L. Cullen, sales manager, The Harrisburg Gas Co., Harrisburg, Pa., due to poor health, has been announced by L. B. Richards, president. Mr. Cullen, a veteran of 40 years in the gas industry, is succeeded as sales manager by Gerald C. Marrs.

Mr. Cullen has served as member or chairman of numerous committees in the American Gas Association and the Pennsylvania Gas Association, and for nine years was secretary and treasurer of the latter group. He was formerly secretary, Eastern States Gas Association. He served with The United Gas Improvement Co., Philadelphia, since 1908, and with The Harrisburg Gas Company since 1917.

His successor, Mr. Marrs, joined Henry L.

Doherty Co., Denver, Colo., as cadet engineer in 1923, and since then has been associated with Surface Combustion Corp., New York, as industrial gas survey engineer; Philadelphia Electric Company as industrial gas engineer; Consumers Gas Co., Reading, Pa., as industrial gas engineer, and Lebanon Valley Gas Co., Lebanon, Pa., as sales manager.

Kelly Receives Southern Counties Appointment

APPPOINTMENT of George T. Kelly, formerly Southern California Gas Co., to the newly created position of assistant treasurer and assistant comptroller, Southern Counties Gas Co., Los Angeles, Calif., has been announced by Arthur F. Bridge, president. Mr. Kelly will work directly under W. J. McCoy, treasurer and comptroller.

A member of the American Gas Association, Mr. Kelly has a wide experience in accounting and auditing work. He joined Southern California Gas Company in 1929, and during the war was transferred from the auditing department to the butadiene plant where he served as office manager.

Michigan-Wisconsin Pipe Line Elects President



Henry Fink

HENRY FINK has been elected president, Michigan-Wisconsin Pipe Line Co., a subsidiary of American Light & Traction Company of which he is also president.

A former director, American Gas Association, and past-president, Michigan Gas Association, Mr. Fink began his career with

San Antonio Gas, Electric & Traction Co., San Antonio, Texas, following graduation in 1908 from the University of Texas as an electrical engineer. He worked in San Antonio seven years.

In 1946 he was elected president, Michigan Consolidated Gas Co., Detroit, Mich., with which he had been associated for 27 years. He first joined Michigan Consolidated as superintendent of distribution, and later became at various times superintendent of production, chief engineer, general manager in the Detroit area, then head of all the company's properties in Michigan.

He is a member of the Detroit Engineering Society and the American Society of Military Engineers.

Gas Machinery Appoints Kyle Sales Engineer



Robert Kyle

ROBERT KYLE has joined The Gas Machinery Company, Cleveland, Ohio, as gas sales engineer. A graduate gas engineer of Johns Hopkins University, he received early training at the Consolidated Gas, Electric Light & Power Co. of Baltimore and at the American Gas Association Testing Laboratories in Cleveland.

Mr. Kyle was formerly with the General Controls Company as branch manager of the Cleveland office, and prior to that with the Iroquois Gas Corp., Buffalo, N. Y., as gas engineer where he engineered the first high B.t.u. installation (twin generator process) installed by The Gas Machinery Company.

Gros Chosen President of San Francisco Advertisers

ROBERT R. GROS, publicity and advertising manager, Pacific Gas and Electric Co., San Francisco, has been elected president of the San Francisco Advertising Club.

Caine Accepts Texas Eastern Offer



W. E. Caine

WALTER E. CAINE is resigning as director, Bureau of Statistics, and secretary, Accounting Section, American Gas Association, to become secretary and treasurer, Texas Eastern Transmission Corp., according to a joint announcement by H. Carl Wolf, managing director, A. G. A., and

R. H. Hargrove, president, Texas Eastern. He will assume his new duties August 1 and will be located in the company's headquarters at Shreveport, Louisiana.

While at A. G. A. Mr. Caine reorganized and expanded the work of the Bureau of Statistics and directed an enlarged program of statistical analysis and market research. At the same time he directed the comprehensive activities of the Accounting Section. He was also active in the work of the Rate Committee and served as secretary of both the Committee on Economics and the Committee on Natural Gas Reserves.

A graduate with honors of the University of Buffalo in 1930 with a Bachelor of Science and Business Administration degree, Mr. Caine completed his formal education at Northwestern University where he received his master's degree in Business Administration in 1931.

Entering the public utility field immediately, he was employed by the State of Wisconsin in 1931-32 to supervise the collection

of statistical and other material relating to power resources of the State. From 1932 to 1938 he was associated with the Public Service Commission of Wisconsin, first as junior case investigator and finally as senior rate analyst in the Department of Rates and Research.

In 1938, following passage of the Natural Gas Act, Mr. Caine joined the Federal Power Commission as rate analyst in the Division of Rates and Research. During 1939, he was loaned to the Department of the Interior to prepare recommendations in connection with Bonneville's rate schedules. The following year, during a leave of absence from F.P.C., he served as associate director for research in the 20th Century Fund's Survey of the relations between the Government and the Electric Light and Power Industry.

Upon his return to the F.P.C. in 1940, he was appointed assistant chief, Division of Rates and Research. Shortly thereafter, J. A. Krug, then director of the Power Division, Office of Production Management, borrowed his services and appointed him chief, Negotiations Section. This work, carried on jointly by the F.P.C. and the War Production Board, consisted of directing a joint staff of rate analysts in the analysis and negotiation of large electric power contracts which federal war agencies proposed to execute.

From October 1942 until September 1944, when he joined the A. G. A. staff, he devoted full time to supervision of the F.P.C.'s war power contract program.

In addition to these activities, from 1942-1944 Mr. Caine taught a course in "Electric and Gas Utility Rate-Making" at the graduate school, Department of Agriculture.

Vice-President Elected by Connecticut Light & Power



R. P. Stacy

ROBERT P. STACY has been elected vice-president, The Connecticut Light and Power Company. Mr. Stacy was formerly executive assistant with the company in Hartford.

R. H. Knowlton, president, has announced the appointment of Sherman R. Knapp as assistant to the president. Mr.

Knapp was formerly assistant to the vice-president in charge of sales, with offices in Waterbury.

A graduate of North Carolina State College, Mr. Stacy first joined the company in 1927. Since that time he has been an engineer in the general operating department in Waterbury, manager of the Winsted Gas Co., assistant manager of the company's Meriden district, supervisor of customer relations at Hartford, manager of the Rockville-Williamantic Lighting Co., and since 1939, executive assistant in Hartford.

Mr. Knapp, who attended Cornell University, joined the company in 1928 as a cadet engineer and in 1930 was successively office engineer and assistant engineer in the general operating department, Waterbury. From 1932 until 1937 he was assistant to the industrial power engineer in Hartford. He was named New Milford district manager in 1937 and in 1941 was reassigned to Waterbury as assistant to the vice-president in charge of sales.

Thorp Leaves A. G. A. Testing Laboratories



C. A. Thorp

CHESTER A. THORP, chief research engineer, American Gas Association Testing Laboratories, has resigned in order to establish his own business.

Mr. Thorp, who has headed Laboratories' research operations for the past three years, is establishing his firm in Los Angeles where he

worked for many years and is widely known. Under his direction research activities at the Laboratories were extensively reorganized and the staff strengthened by the addition of a number of carefully selected engineers and scientists. The Laboratories' recent research accomplishments have been due in large measure to Mr. Thorp's administrative ability.

Well known as a utilization engineer, Mr. Thorp formerly headed the Gas Appliance Laboratory jointly maintained by Southern California Gas Company and Southern Coun-

ties Gas Company of California. During the war he served as a lieutenant commander in the Navy. He has been associated with the gas industry for more than 20 years.

A graduate of Stanford University in chemical engineering, Mr. Thorp joined Pacific Gas and Electric Co., San Francisco, Calif., in 1924 after a year with the Standard Oil Company. In 1926 he became associated with the Los Angeles Gas and Electric Corp., later consolidated with Southern California Gas Company.

Purcell to Manage New Philadelphia Division

J. A. PURCELL has been appointed manager of the newly-created western division, Philadelphia Electric Company, with headquarters at Coatesville.

Mr. Purcell is a graduate of Johns Hopkins University, and has been employed by the Philadelphia Electric Company since 1930. He held various positions in both the electric and gas departments prior to his appointment as division superintendent at Coatesville in 1943, the position he held at the time of his recent appointment.

The Western Division embraces the former Western District of the company with headquarters at Coatesville; the territory served by Chester County Light and Power Co., with headquarters at Kennett Square; and the territory served by Southern Pennsylvania Power Company, with headquarters at Oxford, Pennsylvania. The latter are subsidiary companies.

Davidson Retires from Consolidated Edison

AFTER 35 years of service devoted mainly to accounting and tax matters, Herbert C. Davidson, vice-president, Consolidated Edison Co. of New York, Inc., has retired.

Mr. Davidson was long active in work of the American Gas Association and Edison Electric Institute. In 1924 and 1925 he served as chairman, A. G. A. Accounting Section, and a member of the executive board. He was also chairman of the accounting section, Empire State Gas and Electric Association, and treasurer 1936-1941.

He graduated from Harvard University in 1904 with a bachelor of arts degree and started as a statistician for Standard Gas Light Company in 1913, became controller of the Consolidated company in 1920 and secretary four years later. For several years matters pertaining to rate proceedings occupied a large part of his time. He was elected a vice-president in 1938.

As he completed his duties, Mr. Davidson was a trustee of Consolidated Edison, a post he has held since 1943, and a member of the executive committee of the board of trustees. He was the company's chief accounting officer and responsible for the work of the controller, auditor, and secretary. He also served as secretary of the board of trustees since 1934 and was in charge of corporate matters.

Uhlmeier Named to Iowa-Illinois Post



G. A. Uhlmeier

APPOINTMENT of George A. Uhlmeier, manager, industrial sales department, Iowa-Illinois Gas and Electric Co., Rock Island, Ill., to the position of acting manager, Quad-Cities Zone, has been announced by C. P. Conrad, president. Mr. Uhlmeier replaces H. P. Weeks who has requested an extended

leave of absence due to ill health.

A graduate in engineering from Notre Dame, Mr. Uhlmeier joined the company in 1926 as an industrial engineer, and later served in various managerial capacities.

He is an active member of the American Gas Association Committee on Industrial and Commercial Gas Research as a technical advisor for the committee of project IGR-58, "Investigation of Induction Heating in Relation to Industrial Gas Heating." He is chairman, industrial committee, Rock Island Chamber of Commerce.

In his new capacity Mr. Uhlmeier will supervise activities of Quad-City properties (Davenport, Iowa; Rock Island, Moline and East Moline, Ill., and contiguous territory) with particular reference to sales, industrial engineering and public relations.

Western Engineers Install New Officers

VERNE O. MCCLURG, partner in the Chicago architectural and engineering firm of Mundie, Jensen and McClurg, was installed as president, Western Society of Engineers, June 7 at the annual meeting in the Furniture Club of America.

Other officers are: first vice-president—Gustav Egloff, research director, Universal Oil Products Co.; second vice-president, H. P. Sedwick, vice-president, Public Service Co. of Northern Illinois; treasurer—M. P. Vore, Jr., secretary and treasurer, Republic Flow Meters Company.

Consolidated Edison Editor Heads House Magazine Group

BARBARA BEACH, editor of *Around the System*, published by Consolidated Edison Co. of New York, Inc., was elected president, House Magazine Institute, at that organization's annual meeting in the Roosevelt Hotel, New York, June 10. Miss Beach has been treasurer of the Institute for a number of years and has taken a prominent part in its program to advance the industrial editing profession.

James M. Beall, editor, A. G. A. MONTHLY, was named to serve on H.M.I.'s board of governors.

Bendix Firm Names Director of Sales



P. H. Ericksen

PARKER H. PERICKSEN has been appointed director of sales, Bendix Home Appliances, Inc., South Bend, Ind., succeeding W. F. Linville who resigned recently.

Mr. Ericksen, who served as Bendix advertising and sales promotion manager 1938-1943, has been vice-president in charge of sales, Majestic Radio and Television Corporation since 1943, and president, Majestic Records, Inc. He has had more than 15 years' experience in the appliance business.

Rheem Promotes Lloyd To Manager of Plants

APPOINTMENT of Reese B. Lloyd as manager of plants for Rheem Manufacturing Company has been announced by W. E. Curran, vice-president and general manager.

Mr. Lloyd's advance with the firm has been rapid. He joined the company in 1944 and was made production manager at the Chicago thirty-fourth street plant. In less than a year he was manager of the plant and in less than two years was managing both Chicago plants. Last year Mr. Lloyd was named manager of Rheem western plants.

Guinn to Direct Kansas City Sales Promotion

HAROLD R. GUINN has been appointed sales promotion manager, Security Manufacturing Co., Kansas City, Mo., manufacturers of gas products, according to an announcement by William T. Rasch, president.

Before joining the Kansas City company in October 1945, Mr. Guinn spent 12 years in the natural gas utility field.

Wall to Head West Texas Gas Operations

FIVE promotions have been announced by R. F. Hinchey, president, West Texas Gas Co., which serves natural gas in 44 cities and towns in west Texas.

C. I. Wall, formerly vice-president and assistant general manager and also superintendent of city plants, has been named vice-president in charge of operations with general supervision over all company pipelines, compressor stations, and distributing plants. Mr. Wall is a member, American Gas As-

sociation, and has been associated with the company since 1927.

Herman F. Heath, formerly manager of Midland District, has been made superintendent of city plants with headquarters in Lubbock.

R. W. Lewis, formerly manager of Littlefield District, has been transferred to manager of Midland District, and C. A. Duval, formerly manager of Canyon District, has been transferred to manager of Littlefield District. L. W. McLaury, former telephone lineman, has been named manager of Canyon District.

Mueller Furnace Advances Hume

ROBERT F. HUME has been appointed field service manager, L. J. Mueller Furnace Co., Milwaukee, Wisconsin.

Mr. Hume has been assigned to the company's product engineering department since 1946. His new responsibilities include customer relations on all problems involving maintenance and product, as well as preparation of field service information releases.

Nash Elected Chairman of Metropolitan Gas Council

GEORGE N. NASH, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y., was elected chairman, The Metropolitan Gas Heating and Air Conditioning

Council, during the final meeting before next fall at American Gas Association Headquarters in New York, May 19.

Fred I. Banks, Westchester Lighting Co., Mount Vernon, N. Y., was elected vice-chairman, and Leland H. Kimball, The Bridgeport Gas Light Co., Bridgeport, Conn., secretary-treasurer.

As guest speaker, R. E. Hollinshead, Surface Combustion Corp., Toledo, Ohio, discussed modernizing and upgrading old gas heating installations. He told of a midwest utility which had considerable success in modernizing old installations on its lines, and the representative of at least one eastern utility noted that his company was considering a similar program for the mutual benefit of consumer and company alike.

Hammel Radiator Personnel Promoted

PROMOTION of three executives has been announced by Hammel Radiator Engineering Co., Los Angeles, Calif., in order to allow A. S. Martinson, president, more time to devote to the development of new products.

Louis M. Hull, vice-president in charge of sales since 1944, has been given additional duties of advertising and office management. Robert A. Martinson, secretary-treasurer, has been made factory manager in addition to his work as purchasing agent, and R. E. Washburn, on the plant engineering staff since 1936, has been advanced to field engineer.

EFFECTIVE ADVERTISING

(Continued from page 4)

stated, somewhat differently, by two esteemed advertising managers. Both observations came to me after setting down these thoughts but inasmuch as they seem to coincide with my own thinking, they may be offered as evidence that progressive advertising managers and sales executives have arrived at like conclusions when each has analyzed the relationship between the advertising manager and sales executive.

Marshall Adams, advertising and sales promotion manager, Mullins Manufacturing Co., believes that the advertising manager's job is or should be an administrative position. He believes that in a great many organizations it is an administrative position and that in others it is becoming such, depending on the degree of enlightenment of the management and the advertising manager. He too emphasized that advertising managers should not "miss any bets" in their jobs.

Robert B. Brown, vice-president,

Bristol-Myers Co., expressed himself at Chicago last April during the meeting of the Association of National Advertisers as believing that the advertising manager should consider himself a "business executive in advertising" rather than an "advertising executive in business." There's a nice and rather clear distinction in this approach, and Mr. Brown believes that that distinction, if accepted, immeasurably increases the responsibilities of the advertising manager's job. With these gentlemen I agree.

It can be said that the advertising manager can be most valuable to his company (from the viewpoint of the sales executive) when he recognizes his broad opportunity for service to his company, its investors, employees and public, and approaches the discharge of these responsibilities through the development of executive leadership, with initiative and an understanding of human nature playing an important part. These qualities, together with technical skill and experience, make for the most effective discharge of the advertising executive's responsibilities.

Associated Organization Activities

Canadian Natural Gas & Petroleum Men Convene

C. N. GLENNY, Fort Erie, Northern Ontario, was elected president, The Natural Gas and Petroleum Association of Canada, during the group's annual convention at the General Brock Hotel in Niagara Falls, Ontario, May 27-28. Major E. Sweet, Brantford, Ont., was named honorary president.

Delegates selected S. B. Severson, Buffalo, N. Y., to be first vice-president; J. B. McNary, Hamilton, Ont., to be second vice-president; George H. Smith, Port Colborne, Ont., as treasurer, and Joseph McKee, Hamilton, Ont., as secretary and assistant treasurer.

Also named directors were F. D. Howell, Brantford; J. A. McNevin and T. Weir, both Chatham, and G. D. Wickett, Windsor.

According to S. A. Morse, Chatham, Ont., past-president, the association's 1949 convention will be held in the Hotel London at London, Ontario, May 26-27.

Pfeiffer Named to Head Pennsylvania Gas Group

B. V. PFEIFFER, The United Gas Improvement Co., Philadelphia, was elected president, Pennsylvania Gas Association, at the recent fortieth annual meeting in Galen Hall Hotel, Wernersville, Pennsylvania. A record attendance of more than 300 persons took part in the production, distribution, accounting, customer and employee relations meetings.

Other new officers are as follows: first vice-president—L. B. Richards, The Harrisburg Gas Co., Harrisburg, Pa.; second vice-president—T. S. Lever, Jr., The Philadelphia Gas Works Co., Philadelphia; third vice-president—J. A. Frick, Allentown-Bethlehem Gas Co., Allentown; secretary—William Nülle, Lebanon Valley Gas Co., Lebanon; treasurer—J. A. Schultz, Consumers Gas Co., Reading.

Following a morning business meeting, Hudson W. Reed, president, The Philadelphia Gas Works Company and the American Gas Association, delivered the principal address.

Other features of the program were as follows: Production meeting—"Gas Production Research in 1948," Dr. N. K. Chaney, research consultant, American Gas Association;

"Gas Sendouts Can Be Forecast," by G. R. King, Philadelphia Electric Company.

Distribution meeting—"Characteristics of Gas Househeating Load" by Constantine Bary, Philadelphia Electric Co.; "Automatic Overloading of District Regulator Stations" by C. C. Jones, The Philadelphia Gas Works Company.

Wednesday's Accounting Session featured a talk "Financing by Public Utilities," by Charles L. Isenberg, Pennsylvania Public Utility Commission, and "The Functions of The Bureau of Rates and Research" by Roger A. McShea, also of the Commission.

The customer and employee relations meeting on Thursday was addressed by J. E. Drew, National Association of Manufacturers, and Joseph Bevis, Opinion Research Corporation.

Final session of the meeting was devoted to sales promotion. Albert Coons, Allied Stores Corp., spoke on "Complacency is Worse Than Stupidity"; H. Vinton Potter, A. G. A. Coordinator of Promotion, spoke on "A. G. A. Helps You Sell," and William J. Foster, George D. Roper Corp., selected as his subject "Sales is Only One Gear—But."

Frank W. Lovejoy, Socony-Vacuum Oil Co., as guest speaker at the banquet Wednesday evening, spoke on "It's Later Than You Think."

President James M. Huebner, vice-president, Pennsylvania Power & Light Co., Lancaster, presided at all the meetings.

MR. BLANDINGS

(Continued from page 17)

Counties Gas Company are cooperating extensively in telling the story of "Mr. Blanding's Dream House" and especially of its beautiful all-gas kitchen. Preceding the formal opening of the home, the press was invited to a preview on June 3 at which the stars of the Blanding film, Cary Grant and Myrna Loy, received a mail delivery by helicopter.

Some 400,000 eye-catching stuffers have been included with consumers' bills. Moreover, the gas companies are responsible for construction of a large, decorative directional sign near the house.

Spot announcements on the companies' evening radio program tell listeners about the "Dream House," publicity stories have been released to local trade papers, and pictures of the house and its "Dream kitchen" are placed on gas company display floors.

The \$60,000 model home will be on public display for about six months and all admission fees will go towards a fund to build a memorial medical center in Southern California. At the end of six

New Jersey Association Completes Meeting Plans

MANY prominent speakers are included on the program for the thirty-third annual meeting of the New Jersey Gas Association at Hotel Monmouth, Spring Lake, N. J., September 10.

Following a review of the association's year by Harry A. Sutton, association president, or Howard H. Melvin, vice-president, Ira L. Craig, Philadelphia Electric Co., will present an analysis of the 1948 gas business. Merrylye Stanley Rukeyser, economic commentator, author, editor, and radio lecturer, will deliver a talk "The Outlook for Better Living," and Roy Alderman, vice-president, McCann-Erickson, Inc., will speak on "Ten Errors in Advertising I Try Not to Repeat."

Closing address at the morning session will be delivered by the Rev. R. I. Lindquist, pastor, First Presbyterian Church, Orange, N. J., on "The Source of Strength in Human Endeavor."

Features of the afternoon session will be: "LP-Gas from the Ground Up"—William H. Kramer, district manager, Phillips Petroleum Co., New York; "New Jersey's Untapped Resources"—Wheeler McMillen, editor-in-chief, *Farm Journal*, Philadelphia; "Domestic Gas Utilization Progress Through Research"—R. J. Rutherford, vice-president, Worcester Gas Light Co., Worcester, Massachusetts.

months, a drawing will be held to determine which of the thousands of visitors is to be the lucky owner.

SALES HORIZON

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these problems. As chairman, A. G. A. General Promotion Planning Committee, Mr. Cuthrell is thoroughly conversant with the aims and objectives of the industry's coordinated plans to improve gas and gas service.

The importance of overcoming misunderstandings and lack of knowledge regarding gas utilities and their product was emphasized by Joseph C. Bevis, vice-president, Opinion Research Corporation. Gas companies must interpret their actions to the public to build up public awareness and acceptance, he declared. In the work of his organization in sampling public opinion, Mr. Bevis has served several utility companies.

The Brooklyn Union Players have established a reputation as the gas industry's outstanding group of thespians. The troupe added to its reputation by presenting an amusing and educational skit which dramatized the wrong and the right methods of selling automatic gas ranges built to "CP" standards.

SUPERVISORY TRAINING

(Continued from page 14)

of measuring employee performance and becoming better acquainted with the employee.

7. *Training New Employees*—development of systematic plan for setting up training procedures during six-month qualifying period. (Sound film strip—"The Man in Management" used in connection with this conference).

8. *Merit Review Procedure*—establishment of uniform understanding and application of the merit review plan.

9. *Day-by-Day Supervision*—development of a daily check list of supervisory techniques.

10. *Safe Supervision*—the safety duties of management can be adopted as standard practice by all supervisors.

11. *Labor Management Relations Act, 1947*—a development of an understanding of the provisions of the Act as they apply to labor, employer, and employee.

12. *Company Financing*—informing all supervisors in regard to the company's financial history and present financial situation.

13. *Accounting for Electric Plant & Expense*—development of responsibilities of supervisors in company accounting.

14. *Review and Future Plans*—development of the results of the program and the planning of future conference material.

As will be seen by this list, the first part of the program was devoted to the development of supervisory fundamentals. From there the program has gone

into specific operations which it will continue for a year or more with periodic reviews of the basic fundamentals of good supervision.

As new supervisors come into the group they are given the same material by their immediate supervisors on a bi-weekly basis until they catch up with the rest of the supervisory group.

Results of this program are evident in improved over-all employee relations and supervisory attitudes. In the review conference, the supervisors throughout the property listed the following results:

1. A real desire for individual improvement
2. Self-improvement through self-analysis
3. Supervisory recognition of responsibilities
4. An improvement in esprit de corps
5. Improvement in relations between supervisors and employees
6. Solutions of problems by discussion with fellow supervisors
7. Responsibilities clarified, redistributed and accepted
8. A realization of other supervisor's responsibilities
9. A clear understanding of organizational functions
10. Better understanding of company policies and procedures
11. An improvement in selection of personnel
12. An improvement in employee training
13. Merit Review Procedure revised and extended to all employees (previously did not cover employees on maximum of classification or those covered by contract)
14. Establishment of the understudy program
15. Better delegation of work
16. Clarification of limited term classification
17. A new improved safety program
18. Personal presentation of annual report to all employees by their immediate supervisor
19. Development of Welcome Handbook
20. Simplification of Operating Manual (manual covering all procedures, policies, etc.)
21. Development of new employee check list

Obituary

JAMES K. CROWELL, 62, New York district manager, Dresser Manufacturing Division, Dresser Industries, Inc., Bradford, Pa., died May 25 at his home, 230 East 50 Street, New York, following an extended illness.

Like his father before him, Mr. Crowell spent his lifetime in the gas industry. Born in Yonkers, N. Y., he was employed for 28 years by the Westchester Lighting Co., Mt. Vernon, N. Y., in different capacities. At the time he joined Dresser in the fall of 1929, he held the position of engineer of gas distribution.

A charter member of the American Gas Association (1918), Mr. Crowell was a member of the Distribution Committee from 1925 to 1932. From 1928 to 1932 he served as chairman, Subcommittee on Pipe Coating and Corrosion. He was also an active member of the Empire State Gas and Electric Association.

Mr. Crowell was first employed at Dresser Manufacturing Division as special field representative. His duties entailed travelling throughout the United States in connection with gas problems relating particularly to the clamping of bell-and-spigot joints. For the past ten years, he served as New York district manager, working closely with large utilities throughout the East.

HENRY O. PALMER, retired public utilities executive, died May 31 while aboard a train enroute from Geneva to New York to attend a trustees meeting, New York State Electric & Gas Corporation. His age was 63.

Mr. Palmer entered the utilities field with his father who had founded and was president of the former Empire State Gas and Electric Co., since merged into New York

State Electric and Gas Corp., Ithaca, New York. Mr. Palmer was still a trustee of the latter firm.

He leaves his wife, a son, three daughters, six grandchildren and a sister.

THOMAS W. WILSON, chairman of the board and former president, Delaware Power and Light Co., Wilmington, Del., died June 16 in Delaware Hospital where he had been a patient since April 17. He was 76 years old.

Mr. Wilson was a member of the American Gas Association and Edison Electric Institute, and had been president, Southern Pennsylvania Bus Company and Southern Pennsylvania Traction Company.

Born in New York, he graduated from Lehigh University and served as general manager, International Railway Company at Buffalo, New York, before moving to Wilmington in 1912.

JOSEPH A. PERRY, associated for many years with The United Gas Improvement Co., Philadelphia, before he retired in 1936, died June 21 at his home in Swarthmore, Pennsylvania. He was 74 years old.

Mr. Perry was a former chairman, Technical Section, American Gas Association, and was widely known in the gas industry. He also served as chairman, Perry Gas Making Research Committee.

After joining U.G.I. in 1897, he became successively construction engineer for Yonkers Gas Co., superintendent, Omaha Gas Co., and assistant general superintendent, U.G.I. Later he served as chairman of economics and engineering for gas industries. In the latter post he contributed important reports on the composition of manufactured gas, explaining the possibilities of producing a new gas by-product.

Surviving are his widow, Eleanor Stevenson Perry, and three daughters.

22. Improvement in payroll authorization form
23. Better participation in conferences by supervisors
24. Handling of employee problems by their immediate supervisors
25. No written grievances since inauguration of program
26. Field problems brought to the attention of top management
27. Improved judgment by increased knowledge
28. Increased frankness and cleared up suspicions
29. Individual recognition for outstanding performance

standing performance

30. A planned program for the future.

Throughout the program, the fact that training is a continuous process has been stressed. Our program is not a shot-in-the-arm training device. Interest in it has increased. We have stopped and evaluated its effectiveness and found that its effect has been felt throughout the company. Moreover, there has been an increased interest in training of all types. All of us have come to realize that there is only one cure for the lack of knowledge—that cure is training.

ECONOMIC EXPLORATIONS

(Continued from page 16)

problems. Here is a brief glimpse of some of the factors which we feel are particularly interesting at this time:

Let's start with the shift in income distribution of consumers spending units, and relate this to the part our industry is playing in establishing and maintaining higher levels of the American standard of living.

Between the census in April 1940 and the spring of 1948 there will have been 24½ million births—new people added to the market; 10½ million deaths—old customers lost forever; and 14 million marriages—new family formations representing over one third of the nation's families. Obviously, the market potentials are there and more and more people are in a position to avail themselves of new freedom living with automatic gas heat, automatic gas water heating, and automatic gas cookery.

Our national advertising must be made to fit this situation. Every additional dollar spent now will be far more productive of the necessary earnings to attract new capital. It is pathetic to have to point out the small amount being spent on national water heating advertising—a load which gas executives universally admit is their most profitable one.

Of 45 manufacturers of water heaters, only 14 spent anything on national advertising last year. Makers of electric water heaters spent \$240,000, and gas water heater makers \$128,000. The A. G. A. spent \$91,000 on water heating advertising in 1947, making a total for gas of \$219,000. Compared with

this, we find that manufacturers of water heaters for which no particular fuel is specified spent \$355,000. It should be clear from these figures that something should be done about more national water heating advertising.

Any down-to-earth look at our industry's near or distant economic horizons must take into account the revolution of fuel utilization now under way. All of us have felt the impact of the rush to gas for heating in place of coal or oil. And atomic heat is probably on the more distant horizons. Few companies have been able to meet fully all the demands for gas made upon them.

We now face a new crisis. Inflated demands for gas, stimulated by desperate prices and recurring shortages of supplies of coal and oil, may be still further accelerated by partial or complete mobilization plans. We understand that these plans may require use of substantial additional supplies of natural gas for liquid fuels and also may require devoting a material part of the existing output of oil to uses other than stationary heating.

According to the National Petroleum Council, oil-burning unit space heaters numbered two million in 1941 and 4,250,000 in 1947, and oil burners increased from 2,269,000 to three million. Heating oils last year reached a consumption of 877,000 barrels daily out of a domestic daily production of about 5.1 million barrels. Just imagine the impact on the gas industry of a quick conversion of even a small proportion of the three million oil burners from oil to gas! If anything like this is in the offing, it behooves us all to estimate these potential

demands as quickly as we can in order to be prepared when and if they materialize.

Time, ingenuity, and a large amount of additional capital for the gas industry in all its branches will be necessary to supply gas to such proportions of existing oil-burners as may be impelled to seek gas or coal-firing, if supplies of natural gas or uses of oil become upset to anything like the degree now thought possible in some official quarters. Such a job cannot be done if we are asleep when these new demands come knocking at the door in the middle of the night. It can be done if we seek and see clearly the demands on the horizon and take forward steps to meet these demands when and as they are made. Alertness and resourcefulness are the price of survival.

Another matter about which the committee feels quite strongly is that more attention should be given to the need for simplifying published annual reports and financial statements so that investors, customers and employees alike will all have a better understanding of our economic system in general and in particular a greater appreciation of the economic significance of our operations.

A Selling Job

Let me repeat in conclusion, the welcome delivered by Robert W. Otto, president, The Laclede Gas Light-Co., at the recent meeting of electric and gas accountants in St. Louis, Missouri:

"Let us awaken to the realization that the job is only half done when the service is made, accounted for, and payment made. It is quite as much our duty to see that there is a complete dissemination of information and presentation of facts about our services as it will prevent the recipient of that service from falling easy prey to those who have only some selfish interests to serve.

"It is the nature of people to confer friendship slowly, to bestow confidence only when merited. Businesses that have sought to gain the confidence of the public in a moment of need, have had poor success. Businesses that have neglected friendship after gaining it have lost it by default. Those who work for friendship continually have benefited by them. An effort to attain public regard for a business is no different than an effort to gain regard for the profit. It is a selling job and must be undertaken now by businesses that have institutional character."

If the gas industry follows the Judge's advice we shall find new and greater frontiers with horizons unlimited!

OIL SHORTAGE

(Continued from page 12)

vast new supplies of crude oil in the world awaiting development. The tidelands area of the United States holds great promise of important oil reserves, and vast areas of Latin America are potential oil producing territory. In the Middle East alone present proved reserves are estimated at approximately 30 billion barrels, or 120 percent of the present total reserves in the United States. From this source will come directly or indirectly in the future much of the additional oil needed to meet the demands of our oil-hungry country.

Potential Reserves

Aside from present known reserves in the Middle East, there are enormous additional potential reserves both on land and in the tidelands of this area. And we should not forget that the finding of new oil reserves in our own country has kept pace with withdrawals for many years and may well continue to do so for many more. Behind all this natural crude oil there is synthetic oil, and in this respect the U. S. is particularly fortunate.

Synthesis of liquid petroleum from natural gas is a well-developed process. Two large commercial plants are now building, and a recent estimate indicated that there were 48 locations in the United States where gas reserves of sufficient size to support the operation of commercial sized plants existed.

Gas Synthesis

The cost of gasoline produced by gas synthesis is comparable with the cost from crude oil, although the capital investments required are much larger. We have oil shales in the western states from which a liquid petroleum can be extracted. The quality of this oil is poor and will require extensive refining, making the product cost rather high; but in Colorado alone there is estimated to be more than 100 billion barrels of oil—more than five times the country's present proved crude oil reserves.

Synthesis of liquid petroleum from bituminous coal is also a well-known process, although not developed commercially to the same extent as gas synthesis, and again the capital investments are high, even higher than the gas plants, and the liquid product cost from



"Betty Newtons" attending country club dinner party: (l. to r.) Madeline Schmeltzer, Mt. Vernon; Carol Gamble, Toledo; Elizabeth Richardson, Columbus; Marion Chase, Newark; Doris Kaparoff, Atlanta; Lois Snyder, Elyria; Marion Wilt, Zanesville; Marion Olsen, Lorain, and Eloise Winters, Findlay.

HOME SERVICE

(Continued from page 5)

tric Corp.; Timothy Neese, director of window displays, F. & R. Lazarus & Co., Columbus; Mrs. Pauline Treisch, director of home service, The Tappan Stove Co.; Paul R. Osborn, Caloric Stove Corp., and George Watling, American Stove Company.

Gas company officials taking part included C. I. Weaver, president; W. N. Grinstead, vice-president and treasurer; James E. Humphreys, business promotion manager, and Franklin T. Rainey, general sales manager.

From the opening day, when Mr. Weaver welcomed the "Betty Newtons" and guests, until the "Good-by, Betty Newton" by Miss Kirtland on the fourth day, activities clicked on time.

Luncheons at hotels, a dinner at the

Columbus Country Club, an evening picnic, and daily program intermissions with refreshments eased the intensity of the "work" in the Workshop.

The range of subjects considered shows the thoroughness of the Workshop and gives an inkling of the scope of activities of today's home service girls, and why they are so important in public relations of large companies such as Ohio Fuel Gas.

"Betty Newton," to mention a few things, must be skilled in designing a "super" kitchen, she must have the talent to captivate an audience; must be alive with clever ideas for all kinds of entertaining; must have an intimate knowledge of gas appliances; know how to display merchandise on the sales floor and in windows, and be active in her community.

cheap coal is probably one-third higher than from crude oil. Coal reserves in this country are great enough to provide our liquid petroleum needs for hundreds of years after taking care of all the present uses of coal, although much of the country's coal reserve will be higher-cost production.

Certainly, we do not need to worry about our country running out of oil in the future. Our problem is a relatively short range one, which is all the more reason for feeling that it can be solved by teamwork between the industry and the consumer to keep things in balance for a few years. If we had to look ahead to see that the supply of oil would steadily decline, and that in 20 or 50 years we would be completely out of oil, the outlook would be dismal indeed. But such is not the case. All we need is time, money, and freedom to develop the in-

dusty, and oil will be available.

Heavy residual fuel will continue to present a serious problem, and increased yields of gasoline and distillate fuels are made at the expense of heavy fuel. It is not recommended that any consumer count on getting any more of this product in 1948 than he received in 1947. There could be some extremely slight improvement in supply of residual by reason of increased crude runs, which in some measure could off-set a reduction in yield.

Over the next 12 months, we may have some tight spots and temporary shortages, but we do not feel they will be of any serious proportions, and are confident that if both the oil industry and the consumer understand the situation they can, by cooperatively working together, solve it as was the case this past year.

APPLIANCE CORROSION

(Continued from page 23)

of the front view of the panel on which the necessary relays and switches are mounted for control of heating and cooling cycles is shown in Figure 4.

In conducting a cyclic test from say 80° F (cooling cycle) to 1000° F (heating cycle), the following series of events occur in the operation of the corrosion chamber. At the start of the test, the program controller turns the heating units on, which raises the temperature of the chamber to 1000° F in seven minutes. When this temperature is reached, it automatically turns the current off and opens a solenoid valve permitting water (80° F) to enter the water-jacketed cooling chamber and cool the test specimens to 80° F in approximately three minutes. In the presence of hot flue gases, this results in condensation taking place on the surface of the specimens.

After a predetermined length of exposure under condensation conditions, the controller closes the solenoid on the inlet-water line, opens a solenoid on the water-drain line from the jacket, turns the current on in the heating-unit line, and the cycle is repeated. Operation of the chamber with heating cycles lower than 1000° F is essentially the same with the exception that a transtat (auto transformer) is cut into the heating circuit line and is set to supply only sufficient current to maintain predetermined temperature for predetermined time.

Figure 5 shows typical heating and cooling curves for cyclic operation between 80° F and 400° F, with the program controller adjusted to give a seven-minute heating cycle and a 19-minute cooling cycle.

Tests can be conducted in the apparatus under continuous heating and condensation conditions by manual operation of the panel housing the switches and relays.

Tests were conducted under cyclic conditions (between 80° F and 400° F), continuous heating (400° F), and continuous condensation (80° F) to secure

*Typical analysis for this material would be C-0.06 to 0.10, Mn-0.30 to 0.60, P-0.045 (max.), and S-0.055 (max.).

†After exposure, corrosion products were removed cathodically in a ten percent sodium cyanide bath at a current density of 15 amperes per square foot.

‡Average penetration inches per year = $\frac{WK}{SAT}$ where, W = weight metal loss in grams; A = area in square inches; T = time in years; S = specific gravity (7.86 for SAE 1010 steel); and K = constant = 0.06102 when weight is in grams and area in square inches.

information with respect to type of data obtainable from the apparatus.

The results of these tests are shown graphically in Figures 6 and 8. Specimens tested were one inch by three inches in size and fabricated from SAE 1010*, 22-gauge, No. 3 temper, No. 2 finish, cold-rolled sheet steel. They were degreased (carbon tetrachloride and acetone) and weighed before exposure and removed†, at least in duplicate, at the selected intervals of time.

Fuel gas burned was that delivered by The Ohio Fuel Gas Company at Columbus, Ohio, which is a 1,000 B.t.u. natural gas having a typical analysis (dry basis) of: O₂—0.2 percent, CO—0.3 percent, H₂—0.7 percent, CH₄—87.9 percent, C₂H₆—9.0 percent, N₂—1.4 percent, and CO₂—0.4 percent. The flow rates of gas, primary air, and secondary air to the burner were 0.068, 0.42, and 0.32 cubic feet per minute, respectively. The quantity of air introduced was approximately ten percent in excess of that required for theoretically complete combustion, and resulted in an oxidizing condition in the flue gas.

An average flue-gas analysis based on samples taken during tests over different calendar periods was CO₂—8.5 percent, CO—0.0 percent, O₂—5.1 percent, and N₂—86.4 percent (dry basis). This gave a N₂/O₂ ratio of 3.90, as compared to a calculated value of 3.78.

Sulfur in the form of SO₂ was introduced into the primary air line of the burner from a prepared SO₂ air mixture contained in a pressure cylinder. Flow rates, to secure the desired sulfur contents in the fuel gas, were controlled by a specially constructed flowmeter adapted to the measurement of very low flow rates. Such a meter is fully described in an article by Appleby and Avery titled "An Improved Meter for the Measurement of Gas Flow Rates," Industrial and Engineering Chemistry, Analytical Edition, Vol. 15, No. 5, May 15, 1943.

During actual testing, a continuous record of the test temperatures was maintained by a recorder. The temperatures recorded were secured by means of a thermocouple rigidly attached to the surface of a test specimen. Figure 9 shows a portion of an actual time-temperature graph and indicates the degree of control and reproducibility of heating and cooling cycles. (Continued)

Convention Calendar

1948

JULY

- 12-13 •Michigan Gas Association-Michigan Electric Light Association, Grand Hotel, Mackinac Island

SEPTEMBER

- Aug. 30-Sept. 1 •Eighth Annual Appalachian Gas Measurement Short Course, West Virginia University School of Mines, Morgantown, W. Va.
10 •A. G. A. Southwest Personnel Conference, New Orleans, La.
10 •New Jersey Gas Association, Hotel Monmouth, Spring Lake, N. J.
13-14 •Mid-West Gas Association, Twenty-Fifth Gas School and Conference, Iowa State College, Ames, Iowa (Hotel Sheldon-Munn)
14-16 •Pacific Coast Gas Association, Hotel Casa del Rey, Santa Cruz, Calif.
16-18 •National Petroleum Association, Hotel Traymore, Atlantic City, N. J.
17 •Oklahoma Utilities Association, Gas Division, Biltmore Hotel, Oklahoma City, Okla.
20-22 •National Butane-Propane Association, annual convention and trade exhibit, Congress Hotel, Chicago

OCTOBER

- Week of October 4 •A. G. A. Annual Convention and G.A.M.A. Exhibit, Atlantic City, N. J.
14-15 •Texas Mid-Continent Oil and Gas Association, annual meeting, Fort Worth, Texas
18-22 •National Safety Congress, Chicago
20-22 •American Standards Association, annual meeting, Waldorf Astoria, New York
25-29 •National Metal Exposition & Congress, Philadelphia, Pa. (A. G. A. will exhibit)
26 •Independent Natural Gas Association of America, annual meeting, Mayo Hotel, Tulsa, Okla.

NOVEMBER

- 1-3 •Wisconsin Utilities Association, convention of Commercial and Technical Divisions, Gas and Electric Sections, Pfister Hotel, Milwaukee
8-11 •American Petroleum Institute, Stevens Hotel, Chicago, Ill.
8-12 •National Hotel Exposition, Grand Central Palace, New York, N. Y. (A. G. A. will exhibit)
15-18 •National Association of Railroad and Utilities Commissioners, Savannah, Ga.
18-19 •National Personnel Conference of the Gas Industry, Palmer House, Chicago
18-20 •School Food Service Association, second annual meeting, Statler Hotel, Detroit, Mich. (A. G. A. will exhibit)

DECEMBER

- November 28-December 3 •American Society of Mechanical Engineers, Hotels Pennsylvania & New Yorker, New York

Figure 6 contains rate of penetration curves for tests conducted under cyclic conditions (80° F to 400° F) without sulfur and at sulfur concentrations of 0.75, 0.85, and 5.0 grains per 100 cubic feet of fuel gas. One of the 0.0-grain and one of the 5.0-grain, together with the 0.75-grain test, were conducted during the same calendar period. The other tests were conducted on a different date.

Each point on every curve represents the average penetration rate of two specimens which were located in the corrosion chamber diametrically opposite to each other during testing. The data for any two such specimens checked exceedingly well. This can be noted by examination of the weight-loss data for some of the points on a 5.0- and 0.0-grain curve which are contained in Table 1. In some cases, as for the 0.0 sulfur test in Table 1, specimens were removed in triplicate.

Consideration of the data contained in Figure 6 and Table 1 indicates that:

1. Remarkable reproducibility of test and test conditions is evident by examination of the curves for the two tests conducted at the 0.0-grain level and for the two at the 5.0-grain level obtained over different calendar periods. One curve could easily represent the results of the two tests at either level. In fact, only one curve was used in this case to represent the results of two tests at the 0.0 sulfur level.

2. The effect of the addition of sulfur

TABLE 1. WEIGHT-LOSS DATA FOR A FEW SPECIMENS OF SAE 1010 SHEET STEEL EXPOSED TO FLUE GAS UNDER CYCLIC TEST CONDITIONS

Specimen No.	Exposure Time in Hours	Weight Loss in Gram	Average Weight Loss in Gram
<i>Corrosion Test No. 34 (5.0 grains of sulfur)</i>			
16	7	0.0680	0.0641
18	7	0.0602	"
10	48	0.2290	0.2247
12	48	0.2204	"
4	144	0.2689	0.2686
6	144	0.2683	"
<i>Corrosion Test No. 14 (0.0 grains of sulfur)</i>			
18	8 3/4	0.0062	0.0059
19	8 3/4	0.0060	"
20	8 3/4	0.0054	"
1	21 1/4	0.0071	0.0072
2	21 1/4	0.0075	"
3	21 1/4	0.0069	"
14	75 1/4	0.0090	0.0089
15	75 1/4	0.0084	"
16	75 1/4	0.0092	"

on the corrosiveness of the flue gas under these test conditions can readily be seen. Increasing the sulfur content increases corrosion rates considerably, and the relationship between these rates and sulfur content appears reasonable.

3. It is evident that corrosion rate is a function of time. Corrosion rates determined for short exposure times are quite different than those experienced over a longer exposure period, even though they may be in the same relative order with respect to the sulfur content of the flue gas. It is necessary to extend the length of test period until constant relative rates are obtained for each test condition.

Figure 8 shows the same type of curves as Figure 6 for tests conducted under continuous heating (400° F) and continuous condensation (80° F) with and without 5.0 grains of sulfur per 100 cubic feet of fuel gas. The 5.0-grain curve under cyclic conditions is included for comparison purposes. Consideration of these curves indicate that in this type of test procedure cyclic operation is considerably more severe with respect to corrosion than either continuous heating

or continuous condensation. Continuous condensation promotes a more corrosive condition than continuous heating. At continuous high or continuous low temperature, little effect can be noted on the corrosiveness of the flue gas by the addition of 5.0 grains of sulfur to the fuel gas. This was not found to be true under cyclic operation.

It is apparent from the above discussion that an apparatus and procedures have been designed and developed in which many of the conditions which exist in central gas heating equipment may be simulated. Cyclic conditions can be produced, which are automatically controlled, over a wide temperature range and for predetermined exposure times. The well-known effect of sulfur on the corrosiveness of combustion products of fuel gas is readily demonstrated. Test data appear to be remarkably reproducible and consistent. The equipment lends itself to the study of the many corrosive factors which have been previously discussed.

Considerably more data are necessary under a variety of temperature and sulfur conditions before answers to the original problem are available.

Personnel Service

SERVICES OFFERED

Engineer, Mechanical—Graduate June 1948 NYU, Machine Shop experience. Married, available June 1 for position in East. 1579.

Public Utility Holding Company Statistician seeks employment. Thirty years with company recently dissolved in compliance with Public Utility Act. Been in charge of analysis and preparation of comparable operating reports of subsidiary properties used for supervisory purposes. Covered gas, electricity, steam, water and transportation. New York City. 1580.

Fuel Technologist—June "48" graduate seeks employment preferably in sales engineering work, however will consider work in other phases of the Gas or allied industries. Courses of study include Fuel Gases and Gasification, Thermal Processing of Fuels, Combustion Engineering, and Plant Layout and Design. Veteran, single. (24). 1582.

Commercial Manager—Sales Manager experienced in all phases of commercial work. Successful record in sales work. 1583.

An experienced girl with degree in the field of **Home Service** with gas and electric utility desires a change of position and location. Details and references upon request. 1584.

Chemical Engineer—June "48" graduate seeking

employment as trainee in sales or production work with a future. Ranked in top quarter of engineering class; readily assumes responsibility. Courses of study included Fuels, Power Generation Materials, Plant Layout, and Design. Veteran, single. (24). 1585.

POSITIONS OPEN

Assistant: Distribution Department of New England Utility experienced in design operation and maintenance. Please furnish references and full particulars regarding education and qualifications. 0530.

Development Engineer required for immediate placement to act as project engineer for appliance manufacturer on product development. Technical Education; with several years drafting and development experience. Furnish complete details of background and a photograph, previous salary record and requirements; age 25 to 40. 0531.

Working foreman for small Propane-Air Gas Property, in city of 15,000 population. Good opportunity for one that understands Installation and Service of appliances, meters, etc. Prefer one that desires to work up to managerial position. 0532.

Eastern Utility has an opening for a technical man with Gas Plant experience. 0533.

Sales Engineer specializing on Gas Fired Unit Heaters to cover the Southwest, with headquarters in Dallas. Prefer a graduate mechanical engineer with sales experience in the Industrial Gas Appliance field. Excellent opportunity to grow with a leading manufacturer of Air Conditioning, Refrigeration and Industrial Heating Equipment. Your reply stating age, education, experience and desired salary in the strictest confidence. 0534.

Gas Engineer—Experienced in water gas and coal gas operations. Distribution experience helpful but not necessary. Southern New England location. Graduate preferred. 0535.

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